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Contemporary
Historical
Evaluation of
Combat
Operations
REPORT

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**CONTROL OF
AIR STRIKES in SEA
1961-1966**

1 March 1967

**HQ PACAF
Directorate, Tactical Evaluation
CHECO Division**

Prepared by: Mr. Warren A. Trest

S.E. Asia Team

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TABLE OF CONTENTS

	<u>Page</u>
PROLOGUE	1
<u>Chapter I</u> EVOLUTION OF THE CONTROL SYSTEM (1961-1964)	3
FARM GATE Deployment	3
BARN DOOR Implementation	4
The VNAF Observer	11
The Changing Conflict	14
VNAF Request Net	17
The Liaison Aircraft Situation	19
Control of Night Strikes	21
Prelude to Escalation	23
<u>Chapter II</u> REFINEMENT OF THE IN-COUNTRY SYSTEM (1965-1966)	27
Readiness and Response	28
System Development During 1965	32
Effectiveness of the System	36
MSQ-77 Bombing System	38
Joint Air Ground Operations System	41
Status of FAC Aircraft	42
Profile of the Airborne FAC	45
Management of FAC Resources	49
Night Control Procedures	50
In-Country Epilogue	51
<u>Chapter III</u> OUT-OF-COUNTRY SYSTEM DEVELOPMENT (1965-1966)	54
Expansion and Control	55
Laos Interdiction Program	59

UNCLASSIFIED

TABLE OF CONTENTS (Continued)

	<u>Page</u>
FAC Role in Laos	62
TIGER HOUND FAC	63
CRICKET FAC	65
ELEPHANT FAC	65
SHINING BRASS Procedures	66
AC-47 FAC/Strike Role	68
Control of Night Strikes in Laos	70
GATE GUARD Procedures	72
TALLY HO Procedures	73
Proposed MSQ-77 Site in Laos	75
Airborne Coordinator Procedures	76
Out-of-Country Epilogue	78
<u>Chapter IV</u> COMMAND AND CONTROL OF STRIKE RESOURCES	81
Command and Control of B-52 Operations	85
Employment of USMC Air Resources	92
Geographic Assignment of Areas in NVN	95
Command and Control Epilogue	98
FOOTNOTES	
Prologue	100
Chapter I	101
Chapter II	105
Chapter III	110
Chapter IV	116

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TABLE OF CONTENTS (Continued)

FIGURES

Fig. 1	Follows Page 36
Fig. 2	Follows Page 42
Fig. 3	Follows Page 46
Fig. 4	Follows Page 64
Fig. 5	Follows Page 66

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CONTROL OF AIR STRIKES IN SOUTHEAST ASIA

PROLOGUE

Command and control of air assets in Southeast Asia (SEA) has been a subject of concern within the mainstream of USAF doctrinal deliberation for quite some time, especially since the United States became directly involved in the war in Vietnam. Concurrently, a great deal of time and effort has gone into the sophistication of the Tactical Air Control System (TACS) which was originally installed in the Republic of Vietnam (RVN) in 1962. In consonance with the refinement of the U.S. and Free World Military Assistance Forces (FWMAF) posture in the theater, the TACS has evolved into an integrated system capable of responding to the full spectrum of tactical and strategic considerations. At present, the control system is fully integrated except for a few structural anomalies, i.e., control of SAC B-52 operations and USMC air assets, the ramifications of which will be discussed ^{1/} later in this study.

Although the enemy and the battleground are essentially the same, the nature of the conflict is considerably different compared to November 1961 when the first USAF JUNGLE JIM contingent arrived at Bien Hoa Air Base. Tactical air operations within the changing military milieu have increased more than tenfold. For example; during a two and one-half year period from January 1962 through May 1964, USAF and VNAF combat aircraft flew only 31,696 sorties. ^{2/} Comparatively, the records show that over 80,000 strike sorties were flown during the first six months of 1966 in

[REDACTED]

support of in-country operations alone.^{3/} An additional 67,998* combat
sorties were flown against NVN and over Laos during the same period.^{4/}
Behind this rise in the statistical curve is the story of the expansion
in Southeast Asia of US tactical airpower.^{5/}

Expansion of the Air Force posture in SEA through 1964 was a gradual process, and then the introduction of jet aircraft over North Vietnam (NVN) in 1965 profiled a changing concept of operations, considerably different from that envisioned during the early JUNGLE JIM days.^{6/} The subsequent escalation of the air war to include reconnaissance and interdiction missions over Laos, direct support for friendly Laotian forces, overt air attacks against NVN, and the employment of hundreds of jet aircraft including Guam-based B-52's in the RVN required considerable refinement of the TACS and a rapid expansion of command and control.^{7/}

* This figure would have been even higher had the 30 day moratorium for air strikes over NVN not been established.

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Chapter I

EVOLUTION OF THE CONTROL SYSTEM

1961-1964

When the USAF introduced the Tactical Air Control System (TACS) into the Republic of Vietnam (RVN) in January 1962, the decision to establish the system was not predicated on the probability of tactical airpower becoming an essential element in the counterinsurgency (COIN) environment. The COIN effort was labeled a ground war by the Department of Defense. An official policy statement was made at that time to the effect that "... while naval and air support are desirable, they won't be too effective and we should not think they will win the war." ^{1/}

It is significant, however, that the Commander in Chief, Pacific Air Forces (CINCPACAF) established as one objective of the RVN TACS that it provide "a framework for control of US air capability, anticipating the possible need for fast US intervention at a later time." ^{2/} This characteristic of the TACS provided a flexible base which later allowed for rapid response to the expanding role of airpower in the SEA conflict. ^{3/}

FARM GATE Deployment

At the close of 1961, the USAF had deployed only 16 aircraft to the RVN. These were four SC-47's, Four RB-26's, and eight T-28's which had been deployed to Bien Hoa AB on 5 November 1961 under the FARM GATE concept for covert operations. This FARM GATE unit was the original

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JUNGLE JIM squadron which had been activated on 1 May 1961 at Eglin AFB, Florida. The FARM GATE mission was to train the VNAF while also providing a limited combat capability for the USAF in SEA. ^{4/}

A training program was begun for VNAF pilots and personnel on 15 November 1961. At that time, 30 pilots and 32 maintenance personnel were available for training. ^{5/}

These VNAF personnel were trained in conducting offensive operations, utilizing tactics and techniques developed by the FARM GATE unit to test concepts and to refine operational procedures. FARM GATE aircraft and personnel also supplied certain offensive support which the VNAF was unable to provide. ^{6/}

Early FARM GATE operational missions included both day and night strikes against known Viet Cong (VC) villages, marshaling areas, training centers, and resupply facilities. All such missions were flown with a Vietnamese in the cockpit. ^{7/} This requirement that a VNAF pilot ride in the back seat on T-28 strikes later proved to be one of FARM GATE's more vexing problems. Qualified VNAF pilots resented this duty and, therefore, the VNAF crew members were often inexperienced. Little training was provided, and it was reported that these inexperienced personnel often became violently ill in flight. ^{8/}

BARN DOOR Implementation

Shortly after the decision was made to deploy the FARM GATE contingent to Vietnam, Gen Emmett O'Donnell, Jr., CINCPACAF, stated the

[REDACTED]

need for a joint operations center (JOC) and a TACS in the RVN. At the first Secretary of Defense conference on the increased US advisory commitment in Vietnam, 16 December 1961, Secretary McNamara agreed that a JOC and a TACS were critical to a successful military effort in the RVN and gave his approval to proceed with them immediately. The PACAF version of the TACS to be established in the RVN was planned in the light of three important objectives: 9/

- (1) To provide a structure to apply VNAF air capability, and any other air capability when directed.
- (2) To teach the VNAF how such a system operated and to train VNAF personnel to operate it.
- (3) To establish a framework for control of US air capability, anticipating the possible need for fast US intervention at a later time.

Also at this conference, it was decided that parallel national channels for commitment and control of forces would be established, with "all air operations being coordinated and directed through the JOC". From the very outset, however, centralized control of airpower was not established. For instance, the VNAF and the USAF were controlled by the air operations center (AOC) of the TACS, while the US Army aviation units, and those of the USMC, were subjective to the Army Air Request Net (AARN). 10/ Five years later, although there was a manifold increase in air operations, 11/ the TACS was still not fully integrated.

In addition to the 16 aircraft deployed under FARM GATE there were over 100 other aircraft in-country at the end of 1961. Forty US Army

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aircraft were in the RVN, and the VNAF possessed approximately 70 aircraft. Over the next two years, there was to be a gradual buildup in air resources; however, the USAF posture was thinly spread. By the end of 1963, there was an inventory of over 680 aircraft, with only 117 of these belonging to the USAF. The US Army had 325 aircraft while the VNAF possessed 219, and the USMC had deployed 20 aircraft to the RVN in 1962. Although air resources had increased fivefold, the USAF contribution to the war was minor in nature due to several limiting factors which will be discussed later in this study. The conflict was still considered to be a ground effort and the US military role was still an "advisory" one.^{12/}

Proper control of these air resources, especially the strike aircraft, was a matter of considerable concern. The BARN DOOR concept for establishing a TACS in the RVN was developed by PACAF in late 1961. As previously stated, the TACS was planned along lines which would provide flexible response for contingencies. Thirteenth Air Force Operation Plan 226-61 set forth the particulars for the RVN TACS. Published on 30 December 1961, it called for an air operations center (AOC), a control and reporting center (CRC), two control and reporting posts (CRP's), two air support operations centers (ASOC's), air liaison officers (ALO's), and forward air controllers (FAC's).^{13/} The TACS was tailored to the peculiarities and operational requirements dictated by the insurgent situation. Primary considerations included the Republic of Vietnam Armed Forces (ARVN) organizational and manning structure,

[REDACTED]

terrain, in-country communications, and CINCPAC guidance which expressed the desire for all air resources to be coordinated and controlled through the TACS facilities to give "unity to the air effort".^{14/}

Deployment of the TACS began on 1 January 1962. The AOC was designated at Tan Son Nhut next to the CRC, and on 14 January it was operational. A VNAF officer was made director, and the 2nd ADVON under Maj Gen Rollen H. Anthis assigned a deputy director. Subsections were manned by USAF and VNAF personnel working side by side. Later in January, the I (Corps) ASOC was collocated with the Army II Corps Headquarters at Da Nang AB. On 17 February 1962, the II ASOC was located at Pleiku where it served both II and III Corps, until a III Corps ASOC was formed to cover the southernmost delta area.^{15/}

PACAF TDY personnel established and manned the AOC until PCS personnel arrived in February and March 1962. Basically, the AOC controlled every facet of VNAF/USAF tactical air activity in the RVN. This control was a coordinated effort between USAF and VNAF personnel. USAF personnel assisted and trained their Vietnamese counterparts so that eventually the operation and function of the AOC and its subordinate units could be assumed by Vietnamese personnel.^{16/} Escalation of the conflict in 1965 was to have a considerable effect on this advisory concept.^{17/}

Air support operations centers (ASOC's) were subordinate to and were an extension of the AOC. The ASOC's served as advance operational control agencies on specific operations and fulfilled the requirements of the

[REDACTED]

respective corps regarding CAS and tactical air reconnaissance. The AOC allocated a certain number of daily aircraft sorties to the operational control of the ASOC director for employment as he saw fit. The director was advised in advance of these sorties to allow sufficient time for planning the next period of air operations. Daily fragmentary (frag) orders for assigned flying units were published by the ASOC's. Requirements above ASOC capability and special requests such as interdiction, airlift, psychological warfare and special missions were forwarded to the AOC. ^{18/}

A radar site at Tan Son Nhut which had originally been established in October 1961 as a CRP began functioning as a CRC that same month. The BARN DOOR operations plan designated the site as a CRC and as the alternate Command Post of the AOC. Both of the CRP's were subordinate to the CRC which through crosstell communications displayed the entire aerial picture of the RVN. On 15 January 1962, all VNAF aircraft in the area began utilizing the control facilities of the CRC for reporting in and out, and vectoring to a target area. ^{19/}

In I Corps a USAF heavy radar was set up at Da Nang starting on 7 January 1962. A gap filler radar used by the VNAF at Tan Son Nhut was moved to Pleiku in the Spring of 1962, initially as a reporting post, and manned and operated as a CRP by the VNAF. The CRC at Tan Son Nhut served as the CRP for III Corps and later IV Corps as well. ^{20/}

[REDACTED]

Control and coordination of all air activity over the RVN was a very serious problem area. The AOC exercised operational control over all tactical air operations conducted by the USAF and VNAF, but did not have such control over light aviation activities of the US Army and the USMC. When joint operations such as heliborne operations were carried out, all the TACS control agencies were informed of the operation by the daily AOC frag orders. However, during unilateral tactical, training, and administrative operations the CRC sometimes encountered difficulty in coordinating and identifying tracks. For example, during one three-month period in 1962, 596 unknown tracks were processed. Some unknown tracks defied all attempts at immediate identification because the pilots did not file flight plans. Thirty-one of these unknowns ^{21/} resulted in the scrambling of interceptor aircraft.

One of the most serious failures in BARN DOOR implementation involved the FAC program. The BARN DOOR plan called for an ALO at the III Corps TOC and at Field Command, with other ALO's to be assigned as required. Also authorized by the plan was a five man FAC pool at the AOC to be attached to ground forces expecting to make contact with the enemy. It is interesting to note, however, that the first TDY FAC's who arrived in January 1962 from 5th AF organizations were originally assigned as duty officers in the AOC. There was no FAC program in existence at that time and there seemed to be little interest in the RVN in developing one. There were two apparent reasons for this. USAF FAC's in the RVN could not control strikes nor mark targets. By the

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direction of Vietnamese President Diem only rated VNAF observers could control air strikes. This coupled with the prevailing theory that airpower would not become a necessary ingredient in the war recipe deterred the serious development of a FAC program. It was not until 7 March 1963 that FAC's were assigned to full time duty in their specialty and the FAC program was developed.^{22/} A serious shortage of FAC's when they were sorely needed in late 1964 might have been averted had this portion of the BARN DOOR plan been properly emphasized and implemented.^{23/}

By April 1963, thirty-two ALO's were in the RVN on PCS tours. These personnel were kept busy trying to advise ARVN commanders, who had never conducted coordinated air ground operations prior to the establishment of the TACS, on the use of tactical airpower. Not only were ARVN commanders unfamiliar with tactical airpower, they were afraid of it. Furthermore, they did not know how to request air support. They had not been taught how to operate their own Army Air Request Net. There was so much confusion in the ground ranks regarding the application of air and so much delay involved in air requests, that the role of airpower was diluted to the point of being ineffective.^{24/}

Requests for immediate air strikes came to the AOC through either VNAF or ARVN communications channels. Many of these requests originated from a VNAF L-19 in contact with ARVN ground forces engaged with Viet Cong forces, or from an L-19 reconnoitering a suspected VC area. Immediate requests also originated from ARVN ground forces through the AARN to III Corps or Field Command, and the information then relayed to the

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25/
AOC. Approval authority for strikes was also a cumbersome process, and the overall request and approval system for strikes was such that response time by strike aircraft was frequently over 90 minutes. By the time the aircraft arrived over the target, the enemy had disappeared. 26/

The VNAF Observer

Under President Diem, the VNAF observer in the FAC plane had a serious responsibility. He could be put in prison if he directed a strike against a target which turned out to be friendly. As late as 1964, 27/ several observers were still in prison for this reason.

Restraint was placed upon air operations in the RVN which severely affected effective application. One of the basic tasks faced by the USAF was to find and destroy an enemy who had managed to cancel out much of his adversary's technical superiority by the simple tactic of merging with the non-combatant civil population. The battlefield was without front lines, with the enemy deployed throughout the country and among its inhabitants. Air strikes had to be selective. The backlash of indiscriminate use of weapons, particularly mass weapons, could be disastrous to the war effort. Elaborate precautions had to be taken to make sure that weapons were used on the enemy and not on the people among whom he had infiltrated. These precautions, particularly the need for a Vietnamese observer to direct all air strikes, while necessary in the Vietnam conflict, had a limiting effect upon the employment of 28/ air.

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The problem which this need for a VNAF observer created was illustrated in an incident which took place on 29 February 1963. After observing ground fire from a ridge line and absorbing two hits, the pilot of an HU-1B on a resupply mission near Kontum City in Kontum Province, reported to division headquarters. The division sent an immediate request for an air strike to corps. VNAF T-28's were scrambled and off to the target within twenty minutes after the request was received. This was a relatively quick reaction during that period, but when the T-28's arrived over the target, the slower flying FAC aircraft was well behind and strikes could not be made without it. Luckily, another FAC aircraft was in the air, and the T-28 called upon it to mark the target. This it did, enabling the fighters to unload frag clusters and .50 caliber bullets into the enemy who had just made it to shelter in the woods. The results of this T-28 attack were twelve killed. After the action had taken place, the FAC assigned to mark the target finally made it to the scene, too late to be of any value.^{29/}

There were exceptions to this rule. Pilots could make strikes without a VNAF observer in only three sets of circumstances: when supporting outposts under attack at night, when dropping ordnance in a free zone, or when firing in response to enemy ground fire. On all other strikes, and this included the vast majority of USAF strike missions, the target had to be marked by a VNAF observer. On the other hand, US Army pilots, who were not under the TACS, flying the slower helicopters at relatively low altitudes tended to draw fire and, therefore, could strike back. They

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did not carry a VNAF crew member aboard and only on rare occasions
were their strikes controlled by a FAC. ^{30/}

VNAF FAC's marked the target for the strike aircraft by dropping a smoke grenade out of the rear window or with a smoke rocket. He could ask the ARVN to mark the target by firing a smoke round, but the observer did not normally take this course of action since ARVN forces usually did not have this capability. When the FAC had exhausted his marking capability, he would normally tell the strike aircraft pilot to watch the shadow of the L-19 and the FAC would tell him when the L-19 shadow was over the target. When a language problem developed between a VNAF FAC and a USAF strike aircraft pilot, the USAF L-19 would often relay for the observer, but only if the observer agreed. This language problem was further complicated by poor radio contact. Most VNAF observers could write English, and if one was having language difficulty would write his instruction in English on the L-19 window with a grease pencil. ^{31/} The L-19 pilot relayed for him.

There were certain advantages to having a VNAF observer control strikes, the most obvious of which was that they were assigned to operate in their home areas and were familiar with the terrain. The disadvantages far outweighed the advantages, however, and USAF officials understood that airpower could never be fully effective in the RVN war until this situation was corrected. ^{32/}

When the TACS was established in South Vietnam there was a limited number of VNAF observers and VNAF L-19's available. At that time many

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air requests were turned down because one or both were not available. Thus, a decision was made to train a few select ARVN officers as forward air guides. If the L-19/VNAF FAC combination was not available, these ARVN officers could control air strikes. This was a controversial decision and although the plan was put into effect, little came of it. The ARVN officers were not well oriented in air tactics, and the terrain of Vietnam required that the FAC be airborne in order to see the target, the strike aircraft, and the friendly forces at the same time. Viet Cong tactics were such that they would not normally oppose a superior force and retreated one to two kilometers ahead of advancing ARVN troops. If the FAC were on the ground, he could not see well enough to direct the strike aircraft.^{33/} Although some questioned it, the necessity for a FAC being airborne was still true after the escalation of the conflict in 1965.^{34/}

The Changing Conflict

Following President Diem's overthrow in late 1963, and the subsequent military coup in January 1964, newly installed Premier Nguyen Khanh developed a plan to step up offensive operations against the Viet Cong. Prior to this time, the war had not been adequately prosecuted by the RVNAF, and the enemy had clearly gained the upper hand.^{35/}

Under the pacification plan developed by Khanh, it was believed that a concerted VNAF interdiction program against already established VC bases with the resultant casualties, supply destruction, hindrance of movement, and aerial surveillance would greatly assist the ground

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forces in their expanded operations. It was held that this new approach would require the institution of new thinking, reorientation of tactics and techniques and the provision of additional resources to insure effective air support. Tactical air resources would have to be made available at the time and place required. This was predicated on the location of bases, alert condition, aircraft speed and range. It meant an increase in the deployment of aircraft to remote airfields for temporary periods. ^{36/}

The mobility and habitat of the VC precluded the use of pre-planned targeting to any great degree. The most effective way of assuring timely reaction to air requests was considered to be having sufficient aircraft on a twenty-four hour ground alert throughout the RVN. Air resources in April 1964 precluded this. Due to the limitation in VNAF existing and programmed aircraft and crews, the USAF would have to provide the additional support necessary to provide the timely responsive reaction to all valid requests for air support. ^{37/}

To give the US Army and RVNAF personnel better indoctrination on the air capabilities in the RVN, PACAF initiated a program predicated on an increase of 26 ALO's and FAC's into the TACS. This would place a total of 75 ALO's and FAC's at ground force echelons. By better indoctrination on the use of air power and by better communications, there would invariably be an increase in valid requirements for air support and commensurate need for an increase in air resources. ^{38/}

Actually, there was an increasing demand by ground units for air support of which only fifty percent or less could be met. Partly because

[REDACTED]

of the USAF program for indoctrinating ARVN personnel on air capabilities, and an overall improvement in the TACS, the number of air requests, particularly from III and IV Corps areas, was on the increase. In III Corps, an average of about forty-five percent to fifty percent of requests were being met in June 1964. In IV Corps, the southern Delta area, where heavy fighting took place in mid-1964, only 39 percent of requests for air was satisfied. The reason requests could not be filled was primarily the lack of aircraft, both observation planes and fighters. Where aircraft were not available, the inability of the VNAF to respond either because of lack of training or lack of motivation, contributed to the problem.^{39/}

The nature of the war was changing, as was the role of airpower in the RVN. Due to the fact that the importance of airpower had been underplayed during the previous years, the USAF suddenly found itself in the unenviable position of prosecuting an air war without adequate resources. Rapid development of air assets and the system for controlling these assets became a pressing requirement.^{40/}

VNAF Request Net

Since a TACS had never been used under circumstances where both host country and US air resources were employed simultaneously in COIN operations, the system in the RVN had been under close scrutiny from the date it was established. A TACS evaluation team of 14 officers and airmen was assembled and attached to the Air Force Test Unit in Vietnam for this specific purpose. During three months, 1 June through 31 August

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1963, this team examined the TACS and collected factual information and documented day-to-day operations. This study revealed several deficiencies, mainly a slow reaction time caused primarily by the cumbersome request system for relaying requests up the Army's command line and the procedures for obtaining approval for strikes. A new system, allowing requests to go direct from the field commander to corps, was recommended. ^{41/}

Subsequently, in May 1964 Maj Gen Joseph H. Moore, newly assigned Commander of the 2d Air Division, implemented a new VNAF Air Request Net which allowed immediate requests to go directly from battalion level to the ASOC at the same time requests were going through command line channels. The ASOC would take immediate action to get the aircraft over the target, and if no objections to the strike were made by intermediate echelons (who would have been monitoring radios and known of the request), ^{42/} the target was considered valid and the strike was made.

Under this system, each corps area was provided with an air request net consisting of tactical air control parties (TACP's) and radio equipment to include FM, VHF, UHF and Single Side Band. These TACP's operated under the ASOC's and were located at corps, division, regiment, and in some areas, at sector headquarters. By the end of the year, 50 ALO/FAC's, 17 ALO's and four ASOC's had been provided radio equipment and radio operators to make up the system. ^{43/}

Although implementation of this system was completed by 1 December 1964, it was not meeting the designed standards of effectiveness. The

[REDACTED]

ALO/FAC's in the field with the ARVN units along with the ASOC's had been only partially successful in using the system. The problem of convincing ARVN commanders of the value of tactical airpower when effectively applied reasserted itself. There was a degree of success in this endeavor, however, and a few division commanders had accepted the concept of by-passing their headquarters for fighter support.^{44/} Maj Gen Moore stated:^{45/}

"The Air Request Net has resulted in much quicker handling of requests for air support. We are, at the same time, doing our best to improve response time to these requests. There is still room for improvement in this respect and we shall keep pushing until such response is as good as we can expect."

Under a proposal jointly drawn up by the 2d Air Division and the US Army Support Command, Vietnam, in July 1964, greater use could be made of ground commanders in identifying targets. The proposal was an Army-Air Force move to improve the ARVN reaction to the increasing number of ambushes being made on government forces. Whenever a ground reaction force moved out to help an area or unit under attack, it was to have air support, either FAC aircraft, armed helicopters, or fighters. If the reaction force were ambushed, armed helicopters on the scene could immediately engage targets marked or identified by the ground commander. This could be done while the FAC or the command post helicopter were requesting fighter aircraft. The armed helicopters would at least try to fix the enemy in position or immobilize him until the fighters arrived. If a FAC was not available when the fighters arrived, then the ground commander would assume the responsibility for designating the target to

[REDACTED]

the fighters by any available means of communication or target identification. While the new system still required a Vietnamese to mark the target, these measures were to help speed up the system for getting the fighters on target.^{46/}

The Liaison Aircraft Situation

A shortage of FAC and Combat Liaison aircraft further hindered the effective application of airpower, especially as greater demands were being placed on the tactical air capability in late 1963 and 1964. In July 1963, twenty-two O-1F liaison aircraft arrived in the theater and were assigned to the newly activated 19th Tactical Air Support Squadron (TASS) at Bien Hoa. Before these USAF planes arrived, the VNAF's three L-19 squadrons were carrying the entire FAC and Combat Liaison load.^{47/} At first, the 19th TASS had two missions, to train VNAF pilots and observers in the O-1F aircraft and to participate in combat support missions in the RVN, including combat observation, psychological warfare, aircraft escort duty, troop escort, and forward air control.^{48/}

In a controversial decision in March 1964, MACV stated that the O-1F's of the 19th TASS were to be transferred to the VNAF. Subsequent events altered this arrangement.^{49/}

Headquarters, MACV, faced with the choice of transferring the aircraft of the US Army 73rd Aviation Company or the 19th TASS to VNAF, chose the Air Force's aircraft in spite of objections by the Chief, AF Section, MAAG, and the Commander of the 2d Air Division. The Air Force

[REDACTED]

was in a difficult position regarding retention of the 19th TASS because of a statement made by the Secretary of Defense in October 1963. He indicated that the introduction of the 19th TASS into the RVN was unnecessary and was a mistake on his part.^{50/}

In April, the 2d AD and the 13th AF prepared a proposal to MACV that the 19th TASS be retained in the RVN as a unit to fly excess VNAF T-28's in a FAC role. The T-28's were being made available to the 1st Air Commando Squadron as interim replacements for grounded B-26's until the A-1E's, which had been programmed as replacements, arrived. After the arrival of the A-1E's, the transferred VNAF T-28's would be excess and therefore available for use by the 19th TASS. It was anticipated that the 19th TASS could fulfill FAC mission requirements beyond the capability of the VNAF with 15 excess VNAF T-28's.^{51/}

On 10 June, the matter was still not firm, and although the O-1F's of the 19th TASS had been identified for transfer to the VNAF, no date for transfer had yet been established. During a visit by the Secretary of Defense in May, guidance was issued to expand the VNAF. In preparing to do this, the 2d AD prepared a plan which included a recommendation to retain the 19th TASS including its aircraft. This plan was approved by COMUSMACV and forwarded to CINCPAC for action. Because of guidance provided by the Secretary of Defense in May, it was considered a firm requirement to continue the 19th TASS in PACAF for a minimum of one year. This force was to later provide the nucleus for expanded USAF FAC operations throughout the theater.^{52/}

[REDACTED]

Only 12 USAF O-1F aircraft of the 22-plane 19th TASS were available in December 1964 for combat tasks and these were deployed to the maximum. It was believed that there was a requirement for four squadrons of thirty each to properly accomplish the mission. The mission included visual reconnaissance, which was in later months to prove an invaluable means of target acquisition. In a one-month test in Vinh Binh Province of constant visual reconnaissance by the same FAC, it was found that VC activity was appreciably decreased, offensive ground action was more effective with low casualties, interdiction, targeting and strikes were more effective, and damage assessment was more accurate and timely. It was clear that the application of this technique to other areas would be equally effective. ^{53/}

Control of Night Strikes

Night flare and strike support of outposts and "new life" rural villages became an increasing part of the overall USAF effort in 1964. Beginning in June 1963, there was a sharp upsurge in the number of these missions flown as the VC began increased night attacks. USAF C-123's and VNAF C-47's shared the night flare mission role. Every night, at least one of the C-47's or C-123's was on airborne alert with another standing by to take over when the airborne alert was committed. Fighters were also on airborne alert at night. In the week following the November 1963 coup, as many as 18 requests for air support were received in one night. The VC usually broke off their attacks when flare or strike aircraft arrived. In November 1963, 284 flareship and 298 strike plane

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missions were flown, the highest for the year, dropping to 176 flare ^{54/} and 76 strike missions in December.

During 1964, the C-123's and VNAF C-47's were maintained on airborne alert throughout the night over the III and IV Corps area which provided the best possible response to air requests. Each aircraft normally carried a load of 120 flares which burned from two to four minutes, ^{55/} depending on the type.

When an attack persisted, fighters were scrambled and moved into the area where the flareship was operating. A VNAF navigator aboard the USAF/VNAF flareship maintained radio contact on an FM frequency with the outpost and acted as a relay for information on the location of the VC from ground to fighters. The navigator in effect acted as a forward air control and assisted in designating the target. A large "fire arrow" inside some outposts also was used to indicate the direction from which the attack was coming. Fighters then initiated strikes against ^{56/} the VC with the assistance of flares.

One serious weakness in this system presented itself in 1964. By this time, the VC had acquired enough automatic weapons to create a threat to the attacking fighters. Barrage fire tactics were frequently used along the flight path of the fighter so that the aircraft had to pass through a dense fire pattern. This resulted in numerous hits on fighters executing napalm runs under the flares at night. Two A-1E's were lost on a single mission within minutes of each other for this reason. As a result, frag bombs were substituted for napalm, giving the

[REDACTED]

fighters a dive-zoom delivery with only a short period of exposure under the flares. Under low ceilings napalm was still used. ^{57/}

Prelude to Escalation

By the end of 1964, the USAF in Southeast Asia was involved in two related but separate air missions, one concerning the in-country war in the RVN and the other concerned with out-of-country preparations for escalation. The in-country war was still being controlled from the AOC at Tan Son Nhut; however, a separate command post manned solely by US personnel was established at 2nd Air Division Headquarters on 9 August 1964 to direct out-of-country operations. ^{58/}

Military activities in SEA during 1964, especially the latter half, were in actuality a prelude to escalation of the conflict. The Viet Cong initiative, supported by men and supplies from NVN, was stepped up. Several major changes in the complexion of the VC insurgency profoundly affected the whole doctrine of COIN operations on which US plans were based. These developments profiled a change in the importance of tactical air in the conflict. There was mounting evidence of massive infiltration of hard core military personnel and equipment from NVN across the borders of Laos and by sea and waterway to coastal and river areas. This meant not only an improvement in the quality and quantity of the enemy soldier, but an enlarged potential for large scale fighting using several battalions in setpiece operations. To support this increased force organized in battalions and regiments, the VC could no longer rely entirely on living off the land. Training areas, ammunition

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factories and arsenals, food storage depots, and communications centers ^{59/} were required, and these provided important targets for air strikes.

The VC initiated large scale attacks in the central provinces of II Corps, and there were reports of large VC units throughout the II Corps area. As General Moore stated it: ^{60/}

"...the Viet Cong is growing bigger and more potent and at times has temporarily cast aside its guerrilla tactics and fought like a conventional force. Under these conditions the VC becomes a lucrative target and he has suffered several significant defeats and losses in the past two months under the attack of fighter aircraft."

Aerial reconnaissance operations were begun over Laos in May and June 1964 under the code name "Yankee Team". Subsequently, after two Navy reconnaissance planes were downed, the USAF used F-100's from ^{61/} Takhli, Thailand, to bomb Pathet Lao installations. Air attacks on communist supply routes both in Vietnam and Laos were begun in December and there was a stronger acceptance of the need for air attacks ^{62/} against NVN.

As previously stated, the USAF suddenly found itself prosecuting an air war far beyond the scope for which resources had originally been planned. Air responsibilities had increased sharply and suddenly after the 4 August Tonkin Gulf incident. Contingency plans had to be drawn up quickly, and units readied to carry them out. Additional aircraft, equipment, and personnel were rushed into the theater and new installations had to be hurriedly made ready to accommodate them. ^{63/} Development

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of USAF facilities in both Vietnam and Thailand was widening the base from which operations could be conducted, both in and out of the borders of the RVN.^{64/}

At the beginning of 1964, the USAF and VNAF were operating only two types of strike aircraft, T-28's and B-26's, old veterans in need of replacement. Between June and December 1964, 48 A-1E Skyraiders were deployed to Bien Hoa as replacements for the B-26's and T-28's which had been grounded in the spring. The VNAF striking power was doubled during the same period, going from two to four A-1H squadrons.^{65/}

A force of jet aircraft, F-100's sent to Da Nang after the YANKEE TEAM aircraft were shot down and B-57's sent to Bien Hoa after the Gulf of Tonkin incident, provided a modern jet force for use in air strikes against the VC as soon as political considerations warranted such use. By the end of December there were 30 F-100's at Da Nang, ten B-57's at Bien Hoa, and eighteen F-105's at Korat.^{66/}

One notable organizational feature which stood out at the end of 1964 was the ability of the TACS to adapt itself to the expanding air role in Vietnam. The AOC at Tan Son Nhut, which was rushed to completion in January 1962, was proving highly effective in exercising control of the air war. The AOC worked through the four ASOC's located at corps headquarters in Da Nang, Pleiku, Tan Son Nhut, and Can Tho. A separate ASOC was established at Udorn on 10 August. In the RVN, there were four CRP's, one at each ASOC, and a CRC at Tan Son Nhut. In

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Thailand, there were five CRP's located at Udorn, Nakhon Phanom, Ubon, Korat, and Phitsanulok with a CRC at Don Muang. There were, in effect, three control systems operating for airpower in Southeast Asia, the operations in the RVN controlled by the AOC, out-of-country jet operations controlled by the 2d Air Division Command Post, and operations of conventional units out of Thailand controlled by the AOC at Don Muang. ^{67/}

There were still limitations placed on the system. While some of the rules of engagement had been made more flexible for the use of airpower, others such as the need for VNAF observers on O-1F's remained in effect. Also, the indecision and vacillation over the USAF/VNAF requirement for observation aircraft typified by the 19th TASS deactivation and subsequent reactivation delayed program development. The FAC program had got off to a ragged start, but plans for rapid development had been laid. Due to the limitations placed upon airpower, immediate resources had not been adequate to meet the growing demands placed upon it during 1964. It is significant, however, that in spite of the growing pains experienced by the USAF in SEA, an eye had been focused on contingency requirements. Escalation of the conflict in early 1965 would make the contingency a reality, and as the deployment of forces greatly expanded the USAF posture, tactical air control would have to be made even more responsive. ^{68/}

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Chapter II

REFINEMENT OF THE IN-COUNTRY SYSTEM

1965-1966

Three years had passed since the TACS was introduced into the RVN. The system's effectiveness had been directly related to the effectiveness of the overall military effort. During the first two years, few demands were placed on airpower; therefore, few demands were placed upon the system. To the contrary, USAF officials had been hard put to influence the effective use of tactical air and the need for development of the system. In 1964, the situation was changing, and by the end of the year the VC had taken the initiative while there was serious deterioration both on the political and military front in the RVN. The situation was such by the end of 1964 that it clearly pointed to the need for the US to take the initiative through unilateral participation in the war.^{1/}

On the air side of developments, the end result was that the use of airpower was drastically augmented and the air war in Vietnam in 1965 was dramatically expanded. Expanded air operations included overt US and VNAF attacks on NVN targets, stepped up interdiction of the Laotian infiltration network and the employment of hundreds of jet aircraft including B-52's and carrier based planes against VC targets in the RVN. By this time, the TACS had been developed and shaped into a highly workable mechanism, which could allow for the best use of air resources under controlled conditions to insure a discriminate

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application of airpower. All that was needed was the input of adequate resources and the subsequent refinement which would be required.^{2/}

Now, more than ever before in the RVN, there was a pressing requirement for a fully integrated TACS, charged with the control of all air assets available to COMUSMACV. Air Force people operating the system were intimately familiar with the geographical peculiarities of the RVN and the entire spectrum of air/ground operations. In an area where friend and enemy were intermingled throughout, this expertise was essential. There could be heavy penalties for independent, uncoordinated and uncontrolled employment of air.^{3/}

Readiness and Response

At the beginning of 1965, there were 48 USAF A-1E's and 53 VNAF A-1H's in operationally ready status. The USAF aircraft were flying out of Bien Hoa. Thirty-two VNAF A-1H's were based at Bien Hoa, eleven at Da Nang, five at Tan Son Nhut, and five at Nha Trang. These aircraft were flying approximately 60 combat sorties a day and 30 training sorties, generally operating at a one-sortie-per-plane-per-day rate. In the month of December, the combined USAF/VNAF Skyraider force flew 2075 combat sorties.^{4/}

Introduction of jet aircraft into the Vietnam conflict and the subsequent buildup of the jet force created a steadily rising curve in strike sorties within the in-country conflict. In addition to interdiction and harassment missions, the large influx of US and FWMAF forces

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into the RVN established a growing trend of close air support (CAS) requirements. In-country strike sorties grew from 2392 in January 1965, to 7382 in June, and to 13,274 in December.^{5/} The full spectrum of tactical air support was being provided, including Guam-based B-52 strikes beginning in June 1965. Naval carrier-based fighters were controlled for in-country strikes through the TACS, and the USMC furnished jet aircraft which they considered to be over and beyond the requirements of their own ground forces. New bases were built throughout the RVN, and USAF jet fighter squadrons were deployed, first on a TDY status, and then as the conflict escalated, on permanent assignment to the 2nd Air Division, which was converted to the 7th Air Force in April 1966. By 1966, in-country strike sorties had somewhat leveled off, and throughout the year, an average of about 15,000 sorties were flown per month.^{6/}

Quick and effective response by tactical airpower was becoming an essential ingredient in the prosecution of the war. The old response time of 90 minutes was no longer valid. Dispersal of a modern jet force throughout the RVN, enhanced by a refinement of the in-country TACS, provided an air arm, designed to be responsive to increased requirements. By 1966, a valid system for preplanned and immediate air strikes, which involved the full capability for readiness, i.e., sufficient diverts and ground alerts, was in-being. Response time had been drastically cut, and although there were occasional breakdowns in the system, in many instances immediate requests for CAS strikes were provided within ten

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minutes. This was usually when divers were in the vicinity of the ground forces, or when jet aircraft were based nearby or on cockpit alert. 7/

Continuing high level interest was being directed toward refinement of the TACS, and it was continually being evaluated with an eye toward improvement. One USAF team, led by Major General Gordon Graham and sent to SEA to evaluate the overall USAF effort in the theater, reported certain deficiencies in the TACS and recommended that a special team be sent to evaluate the system. This special team was subsequently sent to the RVN, studied the situation, and recommended several refinements in the system, i.e., better communications and structural realignment in certain instances. Actions were programmed and underway to try and correct certain inadequacies, especially in the areas of technical equipment and adequate resources. Certain other deficiencies, which could be traced back to lack of importance placed on airpower during the "advisory" period of the conflict, were more involved. These basically involved political and environmental restraints and the lack of centralized control of the total air effort. 8/

Priority on in-country strikes was given to CAS missions in support of US ground forces. A close working relationship was developed with the ground commanders, who were more familiar than their ARVN counterparts with tactical airpower and its value in a CAS role. There were isolated instances when the system broke down, i.e., misunderstandings such as more tactical air being requested than was available or required, communications difficulties, and that historical bogey - shortround incidents

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which were inevitable when the friendly and enemy forces were closely engaged. By and large, however, the TACS was responsive to requirements, and the ground commanders were gaining a real appreciation for airpower in the RVN. This was well demonstrated by correspondence in late 1965 when Army Commanders in the RVN submitted written testimony to be used by the 2nd Air Division in conjunction with a Congressional committee investigation on tactical air support in the conflict.^{9/}

The final report on this investigation, led by Congressman Otis G. Pike, which approached many complex problems in a somewhat superficial manner, completely omitted any favorable testimony in regard to the USAF performance in the RVN.^{10/} This was true in spite of the fact that considerable correspondence by Army Commanders, which had been highly favorable to the USAF effort, had been provided to the committee.^{11/} Brig Gen Ellis W. Williamson, Commander of the 173d Airborne Brigade, summed up the TACS effectiveness, when he wrote: "...we have never yet failed to obtain air support quickly and effectively when called for." General Williamson related an anecdote which told of the reaction by one of his troopers to air support:^{12/}

"During this operation one of my sergeants switched his radio over to the fire support channel and called for help. His comment was, 'I am throwing out a smoke grenade and we need some fire 300 yards north of the smoke.'

"Immediately an Air Force FAC in an O-1F airplane called in jet fighters and struck the target. The FAC asked my sergeant how he was doing and the answer came back quickly, 'I don't understand all you are doing but do it again.'"

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System Development During 1965

With the introduction of jet aircraft into in-country operations and the subsequent increase in the tempo of operations, the shortage of FAC and O-1 resources became critical. There was a definite shortage of ALO/FAC's in the theater with several of the TDY personnel unable to return to their units because replacements were not available. Throughout the TACS, there was a critical shortage of officer personnel. The 19th TASS at Bien Hoa still only had 22 O-1F's available for FAC operations. To correct this deficit, plans were made for the introduction of three additional TASS squadrons, which would provide a considerable increase in FAC's and O-1's.^{13/}

In the meanwhile, to increase effectiveness a program was begun to relocate the available O-1F's down to province level in IV Corps with the hopes of expanding this to other provinces. This would allow the FAC to work closely with the province headquarters and become acquainted with the area over which he would fly regularly. This program was temporarily delayed after one province chief treated the aircraft as his personal vehicle. Administrative action to force the province chief to release the aircraft was necessary before more could be assigned.^{14/}

The necessity for having Vietnamese observers fly with the USAF pilots on the A-1E aircraft had been a serious drawback in air operations. By the time jet aircraft had been introduced into the RVN, this requirement was no longer valid, and USAF FAC's directed all air strikes within the US Forces' Tactical Areas of Operational Responsibility (TAOR's).^{15/}

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As previously stated, the announcement by COMUSMACV on 13 February that the Ambassador to Vietnam and the JCS had approved the use of jets in-country, although long awaited by USAF, re-emphasized the critical shortage of FAC's and O-1 aircraft. Since there were just barely enough O-1's to do the job, the 2d Air Division agreed to use Army HU-1B helicopters to carry observers aloft when necessary. At Da Nang, the F-100 pilots conducted tests with O-1F and HU-1B pilots, and were satisfied that these aircraft could support jet operations.^{16/}

Since the Vietnam conflict was different from other wars in which the US had participated, innovations were part of the daily lives of US personnel in the RVN. One innovation, to obtain a fast reaction on air strikes and at the same time provide assurance that friendly forces or civilians were not being hit, was to place a province chief in an Army HU-1B helicopter with the FAC, to fly over suspicious areas. When the aircraft drew fire, the province chief could approve the strike on the spot and aircraft could be called in. Regarding this innovation, General Gordon Graham, while on an inspection visit to the RVN, wryly noted that this tactic would work well "until we run out of province chiefs".^{17/}

In March, the VNAF began receiving additional O-1F's which came from the US Army in Korea and were refurbished for operations in Vietnam. By the end of March, the VNAF had received 45 additional O-1F's, many of which were being sent to province headquarters. This added wealth was more than welcome, and in some places province chiefs were

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actually bulldozing areas around their houses to provide landing strips
for these versatile planes. ^{18/}

The three additional O-1F squadrons of the USAF, the 20th TASS, the 21st TASS, and the 22nd TASS began receiving their aircraft in May and June. General Moore placed the highest priority on getting these O-1's out into the field as fast as they arrived. In August, with the deployment of additional liaison aircraft to the field, the Visual Reconnaissance (VR) program was initiated. VR sorties increased from 552 during July 65 to 3463 in December 1965. DASC personnel indicated that during this period, VR provided detection of, or corroboration on, 80% or more targets. It was planned to disperse the O-1F force over 53 operating locations, using 121 aircraft and 172 forward air controllers. The goal was to cut down reaction times and improve air effectiveness. ^{19/} By the end of the year, there were some 120 USAF O-1F aircraft in Vietnam. There were also 123 USAF ALO/FAC's assigned in-
^{20/} country, more than half attached to US forces.

On 15 August 1965, the AOC was redesignated the Tactical Air Control Center and the ASOC's became Direct Air Support Centers (DASC's). ^{21/} In September, DASC Alpha was formed at Nha Trang as the Air Force counterpart of the Army's Task Force Alpha, and began to function with US/FWMAF units. DASC Alpha was integrated into the same air request control net
^{22/} as the IV Corps DASC's.

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A further refinement of the system occurred with the arrival of an EC-130E configured as an Airborne Battlefield Command and Control Center (ABCCC) on 15 September 1965. Operational evaluation of the airborne command post was initiated, including such functions as an airborne DASC, fire support coordination center, and in emergencies, air strike direction from the flight desk. Additional functions such as mission commander and search and rescue coordination were evaluated in a mission north of the 17th parallel. The operational crew for the ABCCC was provided from the TACC Combat Operations section consisting of a mission commander, duty officer and air defense weapons director. During 1965, the ABCCC flew over 50 sorties. Most effective use was found as an extension of the combat operations function of the TACC on Operation TIGER HOUND,^{23/} which will be discussed in Chapter III.

Prior to the increase in resources, the 6250th Tactical Air Support Group (Provisional) had provided management to the field resources of the system. On 8 November 1965, the 505th Tactical Control Group was activated to replace the provisional group. The mission of the group was to provide command and control and administrative support to assigned DASC's (to include ALO/FAC's and TACP's), TAS squadrons, communications and technical squadron and Tactical Air Control Squadrons (to include CRC's and CRP's). The group also insured proper logistical and maintenance support for assigned operational units.^{24/}

Considerable progress was being made and would continue to be made with the influx of more resources in 1966. Quick reaction and responsiveness had been vital concerns of the USAF in the RVN since it began operations

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in 1961. A great deal of effort had been continuously expended in searching for ways to improve air responsiveness, and this effort would continue. The Air Force was using ground alert aircraft; it had developed procedures for diverting aircraft already airborne to targets of higher priority (preplanned time on targets intentionally spread throughout the day); and, a separate Air Force immediate air request net had been installed to expedite air requests into the DASC's. As General Moore stated, the importance of the air request net could not be expressed too strongly. He said:

"Requests for air support can be initiated in this net, and, unless a higher monitoring echelon denies the request, the TACS commences action. The superiority of this system over the ARVN request net, where air requests have simply disappeared or literally taken hours to reach Air Force hands, is obvious."

Effectiveness of the System

From 1957 until 1965, joint doctrine had required the Army to provide the communications equipment and vehicles and operate the air request net within the TACS. Joint and service studies of better ways of operating and subsequent tests in field exercises in the United States resulted in a complete overhaul of the TACS. As of 1 July 1965, the Air Force, in agreement with the Army, would provide the vehicles, communications equipment, forward air controllers and operate the air request net.

As previously stated, the in-country system in the RVN was designed to permit the fastest possible direct response to a ground unit requiring

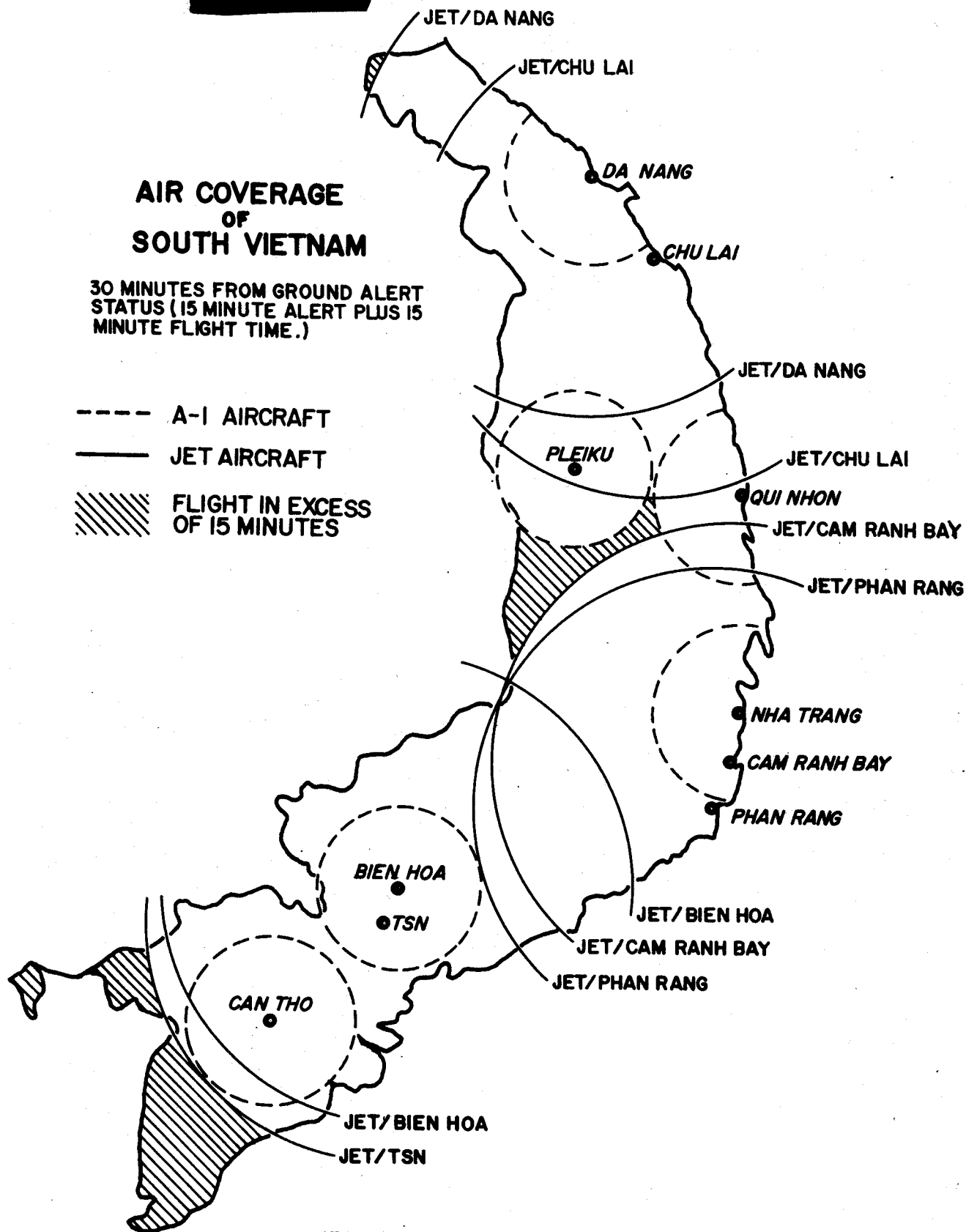


Fig. 1



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support. Upon request by the ground commander, an air strike was launched unless an intervening ground echelon vetoed the request. The TACS provided the command and control linkage to the close air support assets which had been dispersed throughout the RVN. Strike aircraft were deployed to as many as nine airfields as the battle situation ^{27/} required.

As new construction was completed at Cam Ranh Bay, Phan Rang, and another planned base, additional close air support aircraft would be deployed to these airfields. To reinforce the total capability for a flexible, responsive tactical strike system, a number of CAS aircraft were maintained on both airborne and ground alert. The numbers and types of aircraft on alert status varied according to expected operations, and provided a capability for rapid response to requests for ^{28/} immediate close air support.

The improved TACS, the new air request net, and the deployments of first line tactical aircraft had significantly increased the Air Force capability to provide responsive and accurate close air support. Reports from COMUSMACV and US Army officers in the field attested to ^{29/} the effectiveness of this increased capability.

During the latter part of 1965, General Moore made repeated trips to US Army units in the field for the express purpose of determining from the ground commanders themselves how effective tactical air support had been in their individual TAOR's. The statements of these commanders,

[REDACTED]

two of which are quoted below, attest to the effectiveness of tactical airpower as it was being applied in support of ground operations within the RVN. 30/

Maj Gen Stanley R. Larsen, Commanding General, Field Forces, 31/
Vietnam, stated:

"...Since my arrival in II Corps Tactical Zone in early August, the close air support provided by the United States Air Force to US Army tactical units has been outstanding. The close air support effort, as an integrated weapons system consisting of communications, direct air support center, forward air controllers and properly armed fighter-bombers, has been responsive to all demands.

"During my tenure....a series of extremely important and decisive engagements have been fought. In each one tactical air support played a vital role...."

Maj Gen Harry W. O. Kinnard, Commanding General, 1st Cavalry Division, 32/
at An Khe, said:

"...we have found close air support to be responsive, effective, and readily available to support Division operations. Close air support has been invaluable in striking target areas within the Division Tactical Area of Responsibility as a follow-up to aerial surveillance and intelligence reports and in direct support of airmobile assault operations."

MSQ-77 Bombing System (SKY SPOT/COMBAT PROOF)

One of the most significant improvements in the TACS during 1966 was the introduction of the AN/MSQ-77 (SKY SPOT; later redesignated COMBAT PROOF) ground directed bombing system into Southeast Asia. This system filled the gap which existed for all weather and extended night support

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of friendly ground forces, Special Forces camps, and outposts. The first SKY SPOT site was installed at Bien Hoa on 1 March 1966, and was operational by 18 March. Additional sites in the RVN were installed at Dong Ha, Pleiku, and Dalat. In Thailand, a site was located at Nakhon Phanom. ^{33/}

The MSQ-77 sites, when first installed, had the capability to track and control aircraft equipped with X-Band beacons to a range of 98 miles. ^{34/} By November, all stations except Dalat were modified to an increased range of 200 miles. This provided an overlap of about 90% in all Corps areas except IV Corps. Nakhon Phanom and Dong Ha provided overlap in most of the TIGER HOUND area in Laos and the TALLY HO area in the southern part of NVN and the DMZ. In addition, the Marines operated four TPQ-10 sites in northern I Corps, providing a similar service with a 50-mile range capability. ^{35/}

A special plan was devised in March for the use of SKY SPOT in support of Special Forces Camps and outposts. Under the plan, target folders were prepared which included current photography, maps, friendly and enemy situations, reaction plans, tactics and emergency procedures. A specific FAC, flight leader and alternate was selected for each camp. By personal visitation and frequent flyovers, these personnel became intimately familiar with the camp, its personnel, surrounding terrain, access and egress routes, probable reinforcement routes, etc. Many camps also were equipped with PRC-41 UHF radios to provide a homing capability as an additional navigational aid for guiding strike aircraft to camps under attack. All Special Forces camps were catalogued based on

[REDACTED]

UTM grid coordinates to enable SKY SPOT to be used in camp defense. Need for such a program was dramatically illustrated in early March when the A Shau camp was overrun. Extreme IFR conditions in the area, coupled with ceilings as low as 100 to 200 feet, precluded the proper deployment of tactical aircraft and delivery of ordnance that could ^{36/} possibly have saved the camp.

SKY SPOT was achieving a CEP of 300 feet out to 100 miles range. It was being used to deliver ordnance within 800 meters of ground forces. The demonstrated accuracy had given the system a high confidence factor among the ground forces. It was also being used to conduct harassing attacks throughout the night without the use of flares. On a number of occasions, SKY SPOT missions were conducted against enemy strongholds throughout the night at half-hour intervals. ^{37/} SKY SPOT was reported to be having an adverse effect on VC morale, keeping them pinned down at night and in bad weather where before they had freedom of movement. ^{38/}

One limiting factor of the SKY SPOT stations was the range of UHF communications. Although radar coverage extended to 200 miles, missions were seldom conducted beyond 150 miles due to unreliable UHF radio communications. Possible solutions were recommended including the installation of remote UHF antenna sites or the use of directional antennas. ^{39/}

There was also a deficiency in coverage provided throughout the RVN. In IV Corps, despite the increased radar capability, there were five


[REDACTED]

Special Forces camps without reliable SKY SPOT coverage. In the event of a malfunction at Bien Hoa, all of IV Corps and part of III Corps would be without SKY SPOT coverage. There were more than twenty Special Forces camps in the area.^{40/} To correct this situation and to provide back-up capability, Headquarters 7th Air Force recommended to PACAF that the site at Dalat be modified for extended range, and that a 100-nautical mile capable site be established in the Can Tho area of IV Corps.^{41/}

In late 1966, the lack of beacon equipped aircraft in SEA was seriously degrading the effective utilization of the MSQ-77 capability. Only the F-100 aircraft at Bien Hoa were completely beacon modified. F-100's based at Phan Rang were modified with "A" kits but no "B" kits were available. Nineteen portable beacons had been distributed to various units in order that they have a limited MSQ-77 capability. The 7th Air Force Commander requested through CINCPACAF that "extraordinary" action be taken to insure modification of all aircraft at the earliest possible date. It was requested that all portable beacons available in the United States be immediately shipped to SEA to provide an increased interim capability.^{42/}

Joint Air Ground Operations System

In May 1966, in another move aimed at refining the in-country system, the Army Air Ground System (AAGS) was established and combined with the Air Force TACS to realize a true Joint Air Ground Operations System (JAGOS).^{43/} This was in accordance with a JAGOS concept which was jointly



agreed on by the Chief of Staff, US Army and the Chief of Staff, USAF
in August 1965.^{44/}

One significant characteristic of this joint system was the establishment of an Army Tactical Air Support Element (TASE) within the TACC facility to perform the Army portion of the joint function.^{45/} One purpose of the TASE was to screen and approve all preplanned requests. The system also required that immediate requests be approved by the Corps Commander. It further permitted the appropriate Army Commander (Field Force, Division, etc.) to make the decision as to where and in what priority his allocated air support was to be employed. This allowed him to more effectively coordinate the total fire power at his disposal, i.e., tactical air, artillery, armed helicopters, naval gunfire, and organic crew weapons.^{-46/}

Status of FAC Aircraft

Essential to the missions of performing visual reconnaissance and controlling air strikes was the fleet of liaison aircraft. Although the 7th Air Force was authorized 242 O-1 aircraft, it only had a total of 155 O-1's assigned to four TAS Squadrons in-country as of August 1966. These aircraft were dispersed at over 50 operating locations throughout the RVN.^{47/}

All O-1 missions were scheduled on a daily basis by Frag Order by the DASC's to provide airborne FAC control of tactical air support missions, to conduct the visual reconnaissance program, and to provide

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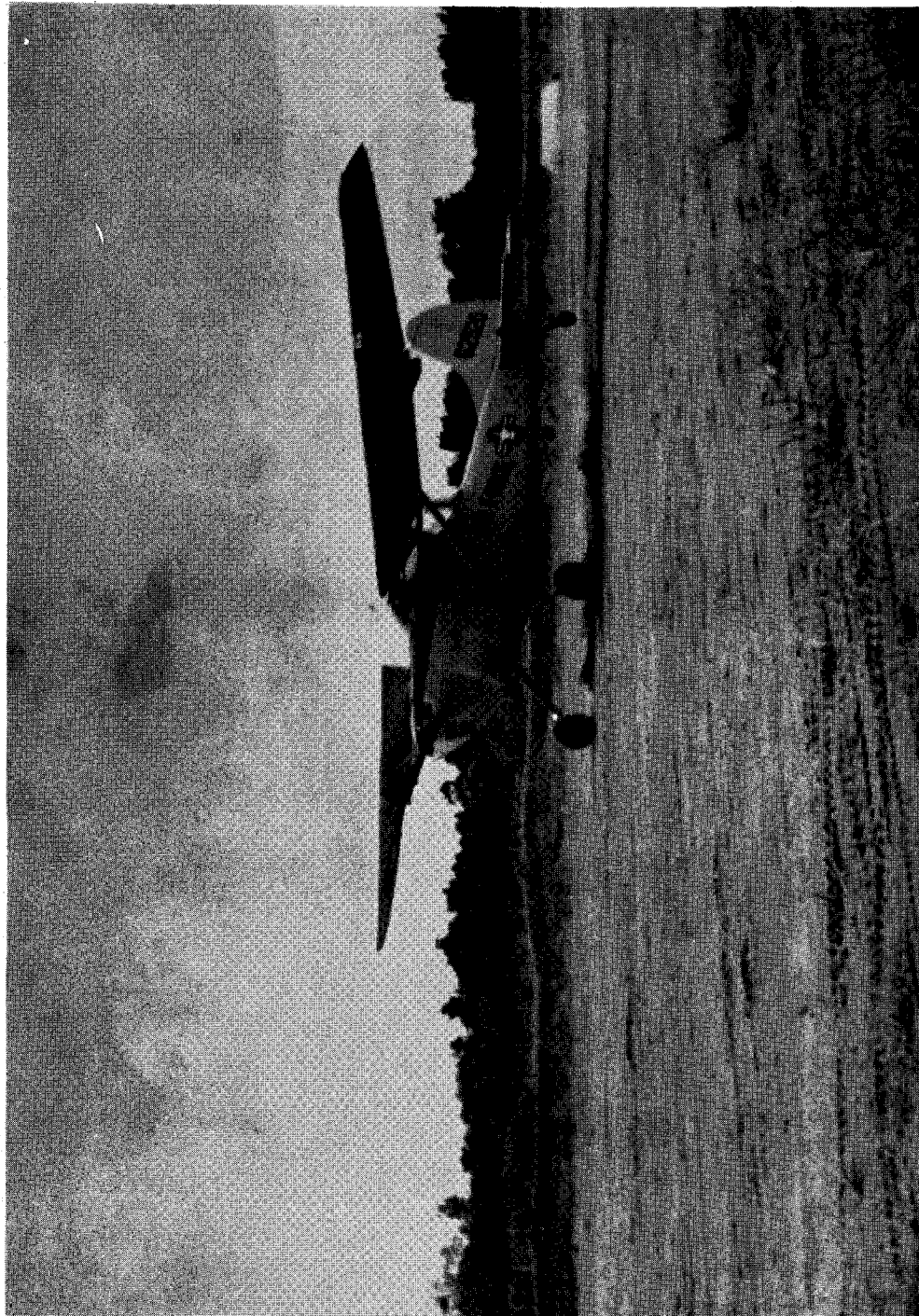


Fig. 2
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column cover for road clearing operations. Division and separate Brigade ALO's determined specific O-1/FAC requirements to meet commitments for the following day. This information was passed to the DASC. Missions were then approved and frag orders published by the DASC. ^{48/}

A critical shortage of O-1 aircraft continued into 1966. The in-being fleet was hard pressed to perform the FAC and VR missions during daylight hours. Night airborne alert requirements added to the problem. ^{49/} Additional O-1's were programmed for the RVN; however, in the meanwhile limited O-1 aircraft resources dictated that maximum use be made of the available aircraft. ^{50/}

In a continuing appraisal of the O-1 situation, COMUSMACV noted that the magnitude of the requirement, coupled with pilot and inventory shortages, required continuing assessment "of the allocation and utilization of available aircraft and pilots to insure that O-1 capabilities were being fully exploited in support of the Command mission." He directed that airborne FAC requirements be accorded first call on O-1 assets. In this regard, COMUSMACV advised that he was prepared to apply US Army O-1 assets to offset the shortage of Air Force FAC aircraft in the theater. ^{51/}

In April, Seventh Air Force implemented a training program to qualify Army O-1 pilots as Target Spotters for CAS missions. By August, 79 Army pilots had received the cross-training. Regarding this program, Lt Gen William W. Momyer, 7th Air Force Commander, wrote to COMUSMACV in August: ^{52/}

[REDACTED]

"Projected increases in the O-1 inventory indicate a total of 243 by October. The number of FAC/ALO personnel should increase to more than 480 for the same time period. Continued cooperation between Army and USAF units for a cross-training program should assure augmented resources for the FAC mission whenever the need arises."

There were qualitative as well as quantitative problems associated with the O-1 aircraft. The O-1 had limited instrumentation and was hazardous to fly in adverse weather or at night when the pilot had reduced reference to the horizon.^{53/} It had no armor, inadequate rate of climb and zoom capability, inadequate top speed, and carried insufficient marking rockets. Also, the rate of engine failures had proved excessive.^{54/}

A SEAOR had been submitted outlining requirements for an improved FAC vehicle. As a replacement aircraft, the OV-10 had been programmed for the RVN. The first OV-10 delivery was set for February 1968. An interim requirement existed, and the twin-engine Cessna 337 Skymaster was approved as the interim replacement for the O-1.^{55/}

On 11 August, 7th AF received a message from CSAF which indicated that 145 Skymasters were proposed for initial procurement. The procurement schedule would begin in December 1966 and end in September 1967, with the first ten aircraft allocated to TAC for training purposes. Actual delivery was expected to closely follow procurement, as initial contracts had already been completed.^{56/}

[REDACTED]

Modifications were to be absolutely minimized and based on tests accomplished by the Special Air Warfare Center. Avionics would include dual tunable UHF, VHF, dual FM, IFF, HF-SSB, IF/ADF, TACAN with DME and X-band beacon. The Cessna 337 was intended to supplement the existing O-1 fleet by filling projected O-1 shortages and attrition losses until the OV-10 became operational. Assuming initial SEA delivery of the ten Cessna 337's in February 1967 and the subsequent monthly deliveries through September, FAC aircraft shortages would continue through May 1967.^{57/}

Profile of the Airborne FAC

One of the most versatile and hazardous professions in the Vietnam conflict was that of the Air Force forward air controller. He lived with the ground forces in a wide variety of environmental exigencies. He was responsible for directing air strikes under all conditions, many of which presented situations where only professional competence and clear thinking permitted success. In addition to the demanding tasks involving ground duties, he flew an unarmed, marginally satisfactory aircraft 80 to 100 hours per month under combat conditions in varying degrees of severity. As one senior officer defined the FAC,^{58/} "He is the eyes, ears, and voice of the Tactical Air Control System."

There were two categories of forward air controllers. Those who were fully qualified and current fighter pilots were classed as Category "A" FAC's. These were assigned only to US Army units. Category "C" FAC's, who were assigned to the ARVN system, qualified by completing

[REDACTED]

O-1 aircraft checkout, air ground school and FAC training.^{59/} Both classes of FAC's were USAF pilots; therefore, pilot requirements for both the US Army and the ARVN systems came from USAF resources.^{60/}

The FAC in the ARVN system was assigned to the provinces. Generally, the requirement was for four to six FAC's per province with an ALO at the ARVN Division and Corps. By conducting visual reconnaissance (VR) in his province, the ARVN FAC became thoroughly acquainted with the topographical features, cultural features, habits of the natives, and had an intimate knowledge of the VC activity and order of battle in his assigned province. He developed targets for air strikes, and as an air advisor to the province chief, he was a prime influence in getting the province chief to grant political clearance and to request air support.^{61/}

The FAC assigned to US ground forces was concerned primarily with the use of air power in the CAS role. He was not as much concerned with target generation as he was with insuring that air was properly utilized to support a ground operation. However, these FAC's were assigned the responsibility of conducting visual reconnaissance in the division's TAOR.^{62/}

In general, on tactical air support missions, the FAC take-off time was determined by the Frag Order published by the DASC. After take-off the FAC monitored the assigned radio net FM, UHF, VHF frequencies. Strike aircraft were controlled by radar sites to a rendezvous point

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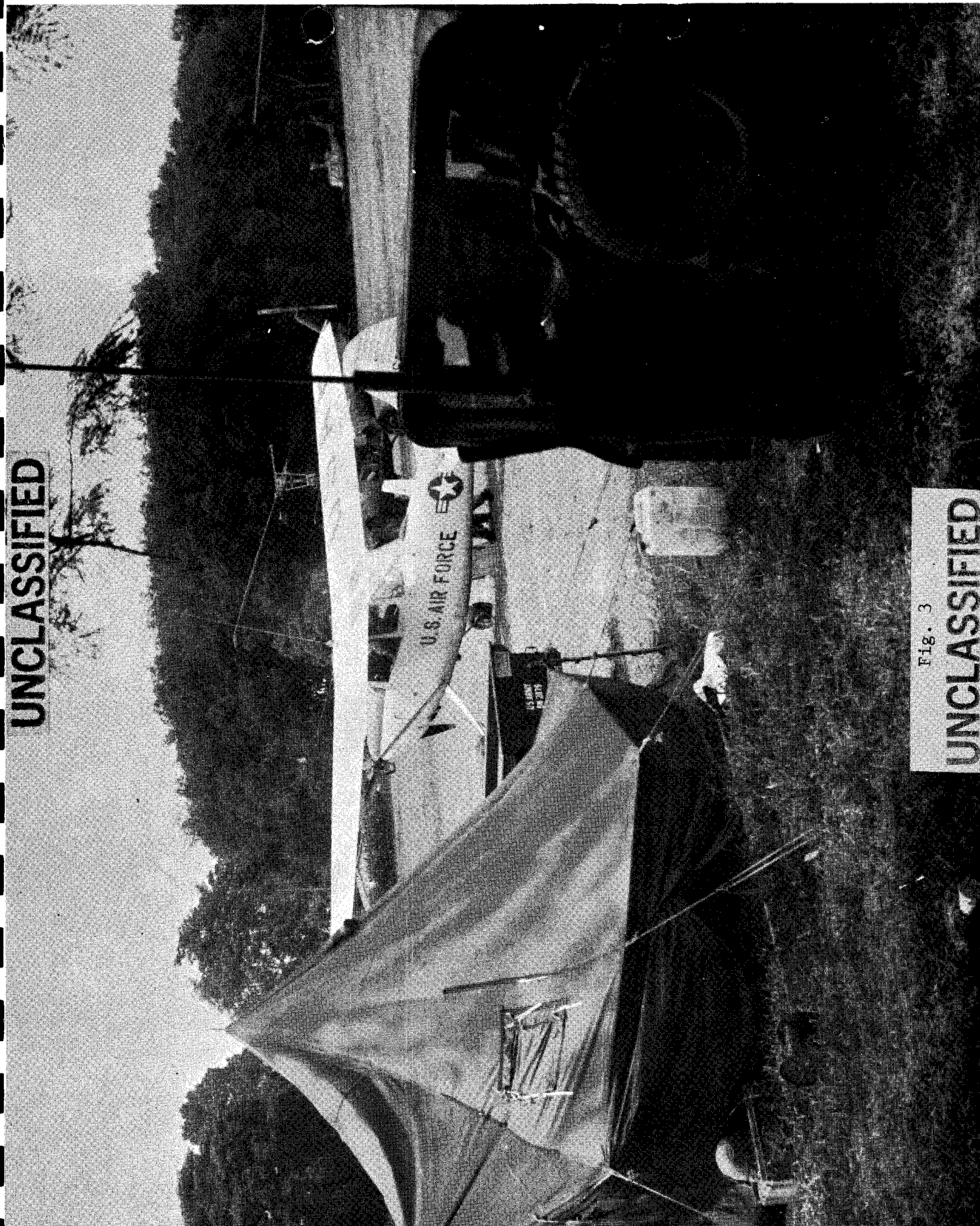


Fig. 3

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and handed off to the FAC for strike control. The FAC was in constant contact with the ALO, the fighters and the ground unit being supported since the ground commander had to give the final approval for the strike. ^{63/} FAC take-off and landing times and mission results were passed through Air Force communications to the DASC. On VR missions control was exercised by the DASC. Take-off time was reported to DASC by SSB. Radio contact was made every 30 minutes by a FAC during VR. Should the FAC fail to make radio contact at the prescribed times, radio calls were initiated from the ground station until contact was made or search operations were begun.

In order to provide control of immediate air requests, FAC's were usually scrambled on orders from the DASC or tasked after a previous strike mission or from a VR mission. The DASC was responsible for establishing the FAC with the fighters and giving information on call signs, frequencies and target coordinates. This was broadcast in the clear on immediate strikes as the FAC did not carry decoding documents. It was the DASC responsibility to plot coordinates and insure that the target was within the proper area of operation. ^{64/}

At forward operating locations, the FAC had to determine go-no-go conditions for both himself and strike aircraft. If the weather was good at the field, the FAC would launch and give advisory weather reports to the DASC. The FAC would advise the DASC to cancel the fighters if he determined that weather conditions were not good enough for a strike. ^{65/}

The uniqueness of the war in the RVN with no battle lines, fleeing targets and jungle environment, necessitated a means of positive target

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identification and validation along with control of strike aircraft. The most effective means for positive strike control was the airborne FAC. Rules of engagement were tailored to recognize the strike problems and outline procedures for handling them. ^{66/}

Although the conflict had escalated, many of the characteristics which had existed in 1961 were still prevalent. In many areas, the enemy forces were still quite adept at blending in with the civilian population. This placed a tremendous responsibility on the FAC, who had to insure that civilian casualties as a result of air strikes were minimized. ^{67/}

A duty officer with the IV Corps DASC fairly well summed up the versatility required of the USAF FAC with the following statement: ^{68/}

"It's very important that the FAC gain the confidence of the province chief and his staff. This is done by using good judgment in target selection and sound advice in the deployment of tactical air. The FAC is, at the same time, a politician, administrative officer, radio operator, and an effective weapons controller."

In 1966 as the US/FWMAF and ARVN forces stepped up offensive actions against the VC, USAF FAC's found themselves controlling air strikes in support of practically every imaginable type ground operation. In I Corps, heavy fighting erupted below the DMZ in mid-1966 and continued into the monsoon season. The central highlands continued to see heavy action. Previously uncontested areas in III Corps became active battle-grounds, as friendly forces took to the offensive. Activity also picked up in the Delta lowlands of IV Corps, as US Forces began moving into this area which had previously been left to the ARVN forces for pacification. ^{69/}

[REDACTED]

FAC's were also used in special programs in-country such as Project Delta, which was initiated in late December 1965. Project Delta was a concept employing reconnaissance units from the 5th Special Forces Group (Airborne), USAF Airborne FAC's and tactical strike aircraft. With a FAC flying overhead, the Special Forces Delta team infiltrated into an area to find and fix enemy units. The FAC provided radio relay and upon location of a target by the team, marked it, and directed strike aircraft to the target. Such projects were closely coordinated between ground and air elements and had been successfully employed against the enemy. ^{70/}

Management of FAC Resources

As forces deployment to Vietnam increased, so had management problems. In this regard, a need developed to provide more positive management to tactical air support resources. On 10 July 1966, shortly after assuming command of the 7th Air Force, Lt Gen William W. Momyer outlined specific guidance concerning reorganization to be made within the Tactical Air Support System. Essentially, he directed that a new Tactical Air Support Group (TASG) be formed, that changes be made in the OER structure, and that operational and command lines be clarified. ^{71/}

The TASG proposed by the Commander would provide TACP's, FAC aircraft, tactical communications equipment and supporting personnel. Also provided would be theater indoctrination training plus administrative and logistical support for all operational personnel in the TACC, DASC's and TACP's. Under this concept, the 505th Tactical Control Group (TCG)

[REDACTED]

would be retained to provide equipment, personnel, administrative and logistical support to all assigned AC&W elements of the TACS. In addition, the 505th TCG would provide radar support for tactical aircraft.^{72/}

This proposal was approved by PACAF, and the organization of the 6253rd TASG was authorized, effective 1 September 1966. Seven squadrons were assigned. Four tactical air support squadrons were in the RVN at Binh Thuy, Bien Hoa, Nha Trang and Da Nang, and one was located at Nakhon Phanom, Thailand. There were two tactical control maintenance squadrons, one at Tan Son Nhut, and one at Udorn.^{73/}

A Theater Indoctrination School was established at Binh Thuy, where a comprehensive in-country O-1 checkout and standardization program would further improve the quality of incoming ALO/FAC's. In another aim at better management, the 7th Air Force began an exchange program between Air Force fighter pilots and forward air controllers. This program was designed to make the best use of both experiences. The net result was expected to be better coordinated, and thus, more accurate airpower for the ground forces in the RVN.^{74/}

Night Control Procedures

In 1966, the primary night concept in the RVN was to provide a 30-minute or less response time for any close air support request, including hamlet defense anywhere in the country. AC-47's were airborne on station with a flare and minigun capability and immediately responsive to the TACS. Aircraft could be vectored immediately to any

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trouble spot and instantly provide either illumination and/or firepower. In the event that additional firepower was needed, then the AC-47 acted as a FAC for fighters that were scrambled by the TACC. Additional flareships were maintained on ground alert so that they could be launched to provide an on-station relief of the active flaeship prior to flare exhaustion. ^{75/}

The SKY SPOT system was used as an alternate to the flaeships, as explained earlier. This was under circumstances when the target had been fixed on the SKY SPOT system of location, and the delivery criteria was within the SKY SPOT system capability. ^{76/}

Other systems had been developed in late 1965 for night interdiction and harassment. Two of these, "Snipe Hunt" and "Lightning Bug", were directed against VC movements on rivers and roads at night. Both programs used side looking airborne radar (SLAR) equipped Mohawks working with FAC's in O-1's and C-123 and AC-47 flaeships. Both were effective. ^{77/}

The F-102 IR search and track capability was exploited for a short period in June 1965 as an indicator to drop a marking charge on campfire returns. It was followed by the F-100's or B-57's dropping ^{78/} in trail. This system was not in use during the latter part of 1966.

In-Country Epilogue

All offensive air operations in-country were in response to requests by the ground commanders. The task of finding, fixing and

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destroying the enemy was in conjunction with efforts by ground elements, and primarily in support of them. Refinement of the Air Force posture and the Tactical Air Control System had been accomplished for the express purpose of being responsive to ground requirements.^{79/} The expanded ground campaign in the RVN during 1966 had generated strike sortie requirements far beyond those envisioned during 1962 when the TACS was first introduced into the country. Throughout 1966, in one major engagement after another, the system responded with timely and effective air support, which on several occasions proved to be the decisive factor between victory and defeat.^{80/}

There were occasional breakdowns in the system, and there were also several short-round incidents which would have been practically impossible to avoid under the circumstances in which the strikes were required to be controlled. In one incident on 26 August 1966, a short-round napalm strike killed and injured a number of soldiers of the US 1st Infantry Division. The strike was made in close support of the US soldiers who were very closely engaged with the enemy. Regarding this incident, Maj Gen William E. DePuy, CG, 1st Infantry Division, ^{81/}said:

"...the responsibility for this regrettable accident rests fully and squarely on the 1st Infantry Division. The forward air controller, air liaison officers and pilots were doing precisely what they were asked to do, and the risks involved were known and accepted by the 1st Infantry Division Commanders on the ground."

[REDACTED]

The respect which ground commanders had gained for tactical airpower in the RVN was clearly shown at the monthly MAC-V Commanders Conference in November 1966. At this conference, each of the division and separate force commanders reviewed their operations of the previous month. Every commander who made a presentation spoke highly of the effective close air support received by his command. One commander said he would have lost the day if it hadn't been for the firepower delivered by 7th Air Force fighters. Cases were cited where strikes were made within fifty meters of friendly troops, and under weather conditions so severe they didn't think the aircraft could fly. Yet, the crucial strikes were furnished as requested and in the quantity needed. ^{82/}

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Chapter III

OUT-OF-COUNTRY SYSTEM DEVELOPMENT 1965-1966

Out-of-country operations prior to 1965 consisted principally of reconnaissance missions in Laos and escort of ELINT missions in the Gulf of Tonkin. These operations were quite simple, and in the case of reconnaissance missions in Laos subject to tight control allowing for little operational flexibility. ^{1/}

The spectrum of out-country operations was then expanded to include armed day and night road reconnaissance in Laos, air strikes in support of Laotian ground forces, and coordinated strikes of sizeable forces against major fixed installations in NVN. ^{2/}

The operational complexity of these out-of-country strikes, plus the short life span of pertinent intelligence, made it mandatory that the tactical commander be given maximum responsibility and authority for the conduct of the strikes. ^{3/}

Such items as the point on the road at which armed reconnaissance missions should start, the type and number of aircraft to be used for strike or flak suppression and the tactical strike concept itself in the final analysis had to rest on the judgement of the tactical commander. ^{4/}

The tactical commander, therefore, had to be given maximum latitude in making the decisions which affected the efficient and effective delivery of ordnance on target and, in turn, determined the overall success

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5/ /
or failure of the mission.

Expansion and Control

Even before ROLLING THUNDER operations were begun over NVN in 1965, YANKEE TEAM reconnaissance operations and the subsequent use of RVN-based aircraft for interdiction and support of Laotian government forces against the Pathet Lao in 1964 profiled a changing concept for prosecuting the air war in Southeast Asia. 6/ /

The new complexion which the war was taking went well beyond the established system for control of air resources within the RVN. The US Navy was employing carrier-based aircraft which were not under operational control of COMUSMACV and the USAF had aircraft based in Thailand for use in strikes against Laos and NVN. 7/ /

As the Air Component Commander under COMUSMACV, the 2d Air Division Commander had established a command center at his Tan Son Nhut headquarters in May 1964 and shortly, thereafter, brought in liaison officers from the 7th Fleet to handle the YANKEE TEAM operation. 8/ /

Second Air Division was responsible for the details of tactical planning, communications, and command and control for US CAP and YANKEE TEAM strikes. The forward AOC at Udorn was the control center. MACJ-2 was designated as the Chairman of the Targeting Subcommittee. 9/ /

This control structure offered the advantages of centralized control, shorter and more direct lines of communication, faster reaction

[REDACTED]

to the needs of the Royal Laotian government and the Embassy, on-hand access to the latest intelligence, and immediate use and response to reconnaissance requests. 10/

Operational complexities in Thailand and Laos dictated unique command lines within the Air Force structure in SEA. A 2d Air Division Deputy Commander for Thailand/Laos was assigned at Udorn to exercise operational control over tactical operations. 11/

A control and reporting post and an air support operations center (CRP and ASOC) were established in mid-1964 to provide the deputy commander with a system of control. 12/

The CRP and ASOC were to serve important roles in the expanded air effort. Their mission was to perform basic tactical air control system functions necessary to the conduct of tactical air operations by both Laotian and US Air Forces in Laos. 13/

In reality, the ASOC was a Tactical Air Control Center (TACC), and would later be renamed as such. It was initially called an ASOC, which did not suggest tactical activity, at a time when the Thailand government was sensitive about the types of US units in the country. 14/

Various services to the Royal Laotian Air Force (RLAF) were provided by the ASOC. This included sortie apportionment and mission planning support to the AOC at Vientiane, and coordination with RLAF to integrate USAF missions in Laos. 15/

[REDACTED]

Even more important, the 2d Air Division Commander was progressively being provided with a Southeast Asia Integrated Tactical Air Control System (SEAITACS) through which he could apply optimum direction to all air assets under his operational control. 16/

FLAMING DART retaliatory raids in February 1965 against NVN set the stage for a regular program of air strikes against the north. Known as the ROLLING THUNDER program, these strikes were only part of a much wider escalation of the war against the communists. 17/

Strikes against targets in NVN emerged in a pattern with the Navy, the Air Force, and VNAF simultaneously, or the Navy and VNAF striking at the same time with USAF providing flak suppression and MIG Combat Air Patrol (MIG CAP) for the VNAF. 18/

ROLLING THUNDER operations were carried out at the same time additional US ground forces were arriving in strength at military enclaves on the coast of South Vietnam, and the BARREL ROLL program of air strikes against the southern Laotian panhandle was undertaken to put greater pressure on the infiltration routes. 19/

Strikes against NVN, like operations throughout SEA, were bound by strict rules of engagement with control of many detailed aspects of operations resting in Washington. The hard selection of NVN targets and the designation of areas for armed reconnaissance were accomplished at the Washington level. 20/

Due to a restriction on the use of Thailand bases for launching

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strikes against NVN, only RVN-based aircraft were used during the first few ROLLING THUNDER strikes. Permission was later granted by the Thai government for the use of Thailand-based aircraft for operations over NVN and Laos, enabling the Air Force to employ its aircraft much more efficiently. 21/

Strike forces in Thailand were building up. Four squadrons of F-105's, two each at Takhli and Korat, were in Thailand by June 1965. A squadron of F4C's had arrived at Ubon to participate in the strikes against North Vietnam. 22/

Because of the buildup in SEA, the 2d Air Division had experienced rapid growth and was approaching the size of a numbered Air Force. On 8 July, the division was relieved from assignment to 13th Air Force and placed directly under PACAF. 23/

This produced an unwieldy command structure in Thailand. While the division was charged with operational activities originating from Thailand bases, the units remained assigned to 13th Air Force. 24/

To provide better command and control, the Deputy Commander 2AD/Thailand was redesignated Deputy Commander 2AD/13AF Thailand. Through him, the 2d Air Division Commander still exercised operational control of Thai-based PACAF forces. 25/

Later, in 1966, when the division was redesignated the 7th Air Force, the Deputy position in Thailand was renamed accordingly. Command lines remained essentially unchanged. 26/

[REDACTED]

Laos Interdiction Program

BARREL ROLL operations began in December 1964. Under this program, USAF and Royal Laotian Air Force (RLAF) aircraft ranged the highways in eastern Laos and the Laotian Panhandle, striking targets on the "Ho Chi Minh Trail" --- the infiltration routes from NVN to the communist guerrilla forces fighting in other Southeast Asian nations. 27/

Although USAF jet reconnaissance aircraft had been flying YANKEE TEAM missions over Laos since May, no US strike aircraft had been deployed prior to the BARREL ROLL program. During the interim period, RLAF T-28's, with USAF air commando trained Laos and Thai pilots, provided the strike sorties for both interdiction and CAS operations. 28/

Four F-105 strike aircraft, eight F-100's flying MIG cover, and three RF-101 BDA/WX aircraft took part in the first BARREL ROLL mission --- an armed reconnaissance sortie along Route 8 and a strike against the Nape Highway bridge --- 14 December 1964. 29/

During the first three months of operations, more than 50 percent of the effort was devoted to armed reconnaissance of various highways and roads in northern Laos and the Panhandle. In the first three months of 1965, 48 BARREL ROLL missions were flown, 30 of which were armed reconnaissance flights covering the major supply routes in Laos. 30/

The new interdiction program was basically a combination of daylight armed reconnaissance, night route reconnaissance missions, YANKEE TEAM

[REDACTED]

flights, and RLAF T-28 operations which provided a balanced, day and night, interdiction effort to exert constant pressure on the communist supply-
31/
resupply network.

A follow-on interdiction program known as STEEL TIGER began on 3 April 1965, and basically followed the pattern of BARREL ROLL operations. The operating area for the new interdiction effort was limited to portions
32/
of the Laotian Panhandle, south of Nape Pass.

BARREL ROLL/STEEL TIGER operations were accomplished through coordinated employment of the C-47 airborne command and control center (ABCCC), A-1E forward air controllers, and F-105/F4C strike aircraft. Targets were selected from AIRA, Vientiane, recommended priority RLAF target
33/
list, and from all-source intelligence reports.

In July 1965, a concept of ground alert for rapid response to immediate strike requirements in Laos was initiated, using Thailand based USAF resources. Known as BANGO/WHIPLASH, the concept involved not only
34/
strike aircraft, but immediate reaction reconnaissance.

BANGO missions were flown by F-4C's at Ubon, and WHIPLASH by F-105's from Korat and Takhli. These alert sorties were aimed at military areas, clusters of buildings, entrenchments, foxholes, troop concentrations,
35/
bridges and other ALO/FAC marked targets.

The storm broke over the southern Laotian Panhandle between 12-25 November 1965. USAF aircraft flew 466 sorties in that period, which was

[REDACTED]


only prologue. USAF operations provided 740 sorties from 26 November to 9 December. The Navy flew 451 sorties. 36/

This sudden increase in activity announced the birth of TIGER HOUND, an area within the STEEL TIGER operating zone in the southern Panhandle, including parts of Saravane and Attapeu provinces. The special operating area was established late in November to counter the large buildup of PL/VM forces and the increasing concentration of communist infiltration in the the southern provinces. 37/

A joint organization was established under the 2d Air Division to direct operations in the area. USAF, USMC, and USN aircraft flying combat strikes in the TIGER HOUND area were guided to assigned targets by an airborne command and control system and US FAC's. Laos observers were assigned to FAC aircraft to reduce the time required to obtain target approval. 38/

When the TIGER HOUND zone was marked for special attention, changes were also made in the command and organization structure. On 10 December, the 2d Air Division was delegated coordinating authority for BARREL ROLL/STEEL TIGER, and the Commander was assigned complete responsibility for planning, scheduling, coordinating and execution of air operations in support of the Laos interdiction program. 39/

Under the code name CRICKET, operations were begun utilizing US FAC's stationed in Thailand to coordinate strikes against targets authorized which had been discovered through intelligence obtained from road watch


40/
teams.

FAC Role in Laos

Controlling air strikes in Laos carried with it a tremendous responsibility. Political considerations required that rules of engagement in 41/ Laos be equally, if not more discriminately, applied than those in the RVN.

For instance, napalm could not be expended in Laos unless authorized by the US Embassy (AMEMB) in Vientiane. Night attacks on fixed targets were not authorized. Bombing, including radar bombing through an over-42/cast was prohibited except as specifically approved by AMEMB Vientiane.

Flights under FAC control would not expend ordnance if the target was in doubt, if instructions were in question, or at the direction/decision of the flight leader or controller for any other reason. Camp 43/fires and civilian habitations would not be struck.

In the BARREL ROLL/STEEL TIGER area, flights established radio/radar contact prior to entering and exiting the armed reconnaissance area and utilized GCI/TACAN information to insure positive positioning in the targeting area. Flights which could not establish radio/radar contact with GCI or insure positive positioning with TACAN were required to abort 44/ unless the flight was under FAC control.

There were several sources for providing FAC's for controlled strike missions. Ground FAC's were associated with Forces Army Royale (FAR) .. elements and Laos-based airborne FAC's operated under the auspices of the

[REDACTED]

RLAF. US FAC's were used in TIGER HOUND operations and Operation CRICKET. ^{45/}

Forward air controllers were required on all CAS missions, specified targets when required by AMEMB Vientiane, and all targets located within five kilometers of the Cambodian Border in the southern Laos area. An RLAF FAC was available to assist in attacking any authorized target.

^{46/}
Requests were made to USAIRA Vientiane.

The FAC team composition often used in northeast Laos was: (1) a US FAC to control jet aircraft, (2) a Thailand FAC to control T-28's, (3) a Meo familiar with the terrain and ground disposition, (4) a Lao who spoke Meo and Thai, (5) a civilian pilot, and (6) an interpreter for the four languages. ^{47/}

In all areas, positive visual identification of the controlling aircraft and continuous two-way UHF communications was mandatory if airborne control was used. Continuous two-way UHF communications was usually always mandatory for the ground FAC's. Voice authentication was not required in either case. ^{48/}

Night FAC controlled missions were authorized to expend ordnance without direct UHF radio contact if the FAC had continuous UHF contact with the flare aircraft and the flare aircraft had continuous UHF contact with the strike aircraft. ^{49/}

TIGER HOUND FAC

Under the TIGER HOUND concept of operations, a special task force

[REDACTED]

[REDACTED]

was created ostensibly reporting directly to COMUSMACV. Headquarters for 50/ the TIGER HOUND Task Force was located with the TACC at Tan Son Nhut.

O-1 aircraft assigned to the TIGER HOUND Task Force were operating into specified areas of southern Laos for the purpose of directing strikes against preplanned, approved RLAF targets and conducting VR to generate additional targets, both on armed reconnaissance and in adjacent areas. The TIGER HOUND O-1's were supported by an ABCCC, call sign "Hillsboro", capable of providing strike approval and fighters for newly discovered 51/ targets.

Twenty O-1 aircraft were in position at four airfields in the RVN to support TIGER HOUND operations. The primary purpose of the O-1 FAC's was to generate targets from VR sorties. Fifty-five percent of TIGER HOUND 52/ sorties were against targets discovered on VR missions.

The TIGER HOUND FAC was in constant contact with Hillsboro. This allowed him to request and usually get aircraft for attack against targets of opportunity on an immediate basis. Also the presence of a Lao officer 53/ on the ABCCC permitted rapid validation of targets in TIGER HOUND.

The ABCCC had a direct link with the Embassy at Vientiane. Coordinates and descriptions of the targets were passed to the Embassy, which obtained permission to strike from the Laotian government. This authority was relayed to the ABCCC, which then diverted available air resources to 54/ strike the target under FAC direction.

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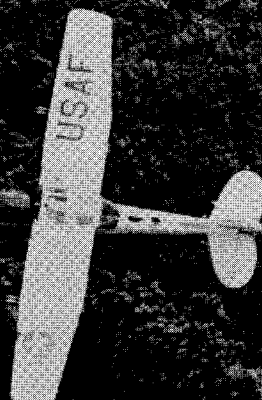


Fig. 4

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CRICKET FAC

In contrast to the TIGER HOUND procedure, there was the FAC concept employed in the CRICKET program. In this procedure, targets were obtained as a result of FAC and "road watch" reconnaissance. The "road watcher" could communicate with the FAC as well as with Vientiane. ^{55/}

The FAC, in turn, communicated with the TACC at Udorn through other aircraft and through Nakhon Phanom. In turn, the Udorn TACC usually requested air strikes from the 2d Air Division at Tan San Nhut. ^{56/}

CRICKET aircraft were manned with USAF pilots and Laotian observers to perform close surveillance in relatively small inaccessible areas associated with LOC's. Such aircraft, coupled with sophistication of the reporting system and increased knowledge of the terrain by the pilot and observer and quick reaction to the road watch and CAS intelligence net reports was producing good results. ^{57/}

ELEPHANT FAC

A ground FAC/Liaison team, call sign ELEPHANT, was operational with a friendly force located astride Route 9 in Laos. This team, with English speaking personnel, had ground-to-air/ground-to-ground voice communication capability. ^{58/}

Primary contact by the ELEPHANT team with airborne aircraft was with Hillsboro and FAC O-1's on FM Frequency. During darkness, contact with flare aircraft was made if required. ELEPHANT control did not have UHF capability. ^{59/}

[REDACTED]

Purpose of this team was to aid in identification of friendly positions, prevent accidental bombing and to coordinate for air strikes, pre-planned or immediate, in the vicinity of their position. During daylight hours, strikes could be conducted by direction of Hillsboro (the airborne control center) and under the control of FAC's at the request of ELE-
60/
PHANT.

SHINING BRASS Procedures

Under the SHINING BRASS concept of operations, ground special forces teams infiltrated into Laos from the RVN for the purpose of establishing contact with enemy forces. Once the enemy was contacted, air strikes were called in. A two-hour block time was usually established for team insertion. A FAC and two A-1E's were alerted to fly top cover.
61/

If the team cancelled out, the air assets were released for other missions. Then, if the team was rescheduled for the same day, escort was usually provided by armed helicopters which could engage in fire suppression.
62/

SHINING BRASS personnel initiated strike requests via the FAC to the ABCCC. Using a code word, "Golden Earring", indicated that the SHINING BRASS Team had nominated the target and the team had found factual evidence of the enemy at the target coordinates.
63/

The words, "I am in contact", conveyed that the team would remain in the target area, and their location was known by the FAC.
64/

Upon receiving authority to strike the nominated target, the ABCCC

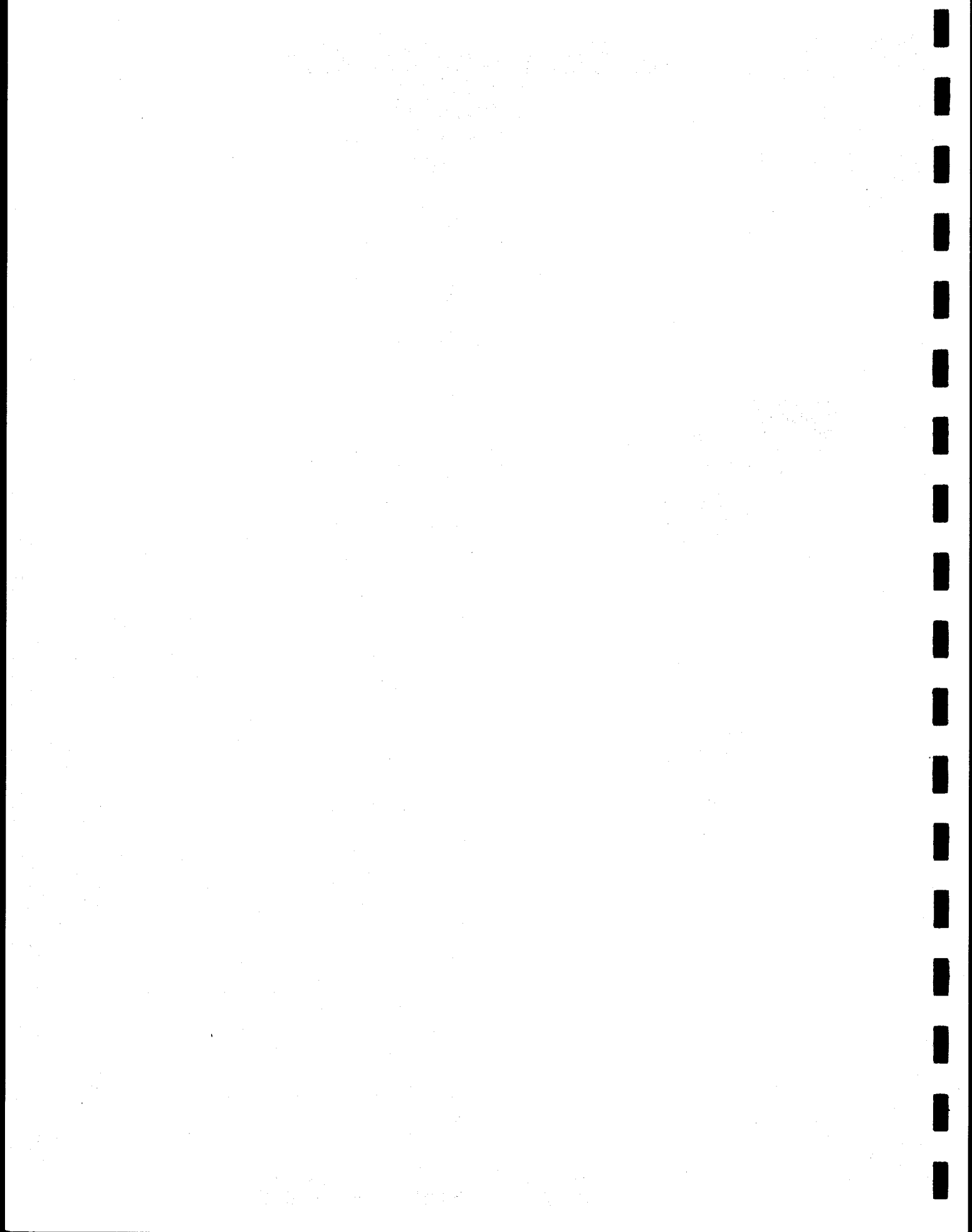
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Fig. 5

A1E

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[REDACTED]

would divert or obtain strike aircraft as required to destroy the target. When practicable, a SHINING BRASS representative would accompany the FAC assigned to the SHINING BRASS operation to assist in identifying the target. ^{65/}

When emergency air support of, or air cover for, a SHINING BRASS reconnaissance team was required for survival, TIGER HOUND assets were provided when requested by the primary or alternate procedure. Using the primary procedure, the SHINING BRASS team contacted the TIGER HOUND ABCCC or the airborne FAC and requested immediate assistance. Requests were prefaced by the word "emergency". ^{66/}

The alternate procedure required the team to contact the SHINING BRASS Command and Control Center at Da Nang and request immediate assistance. The control center then requested appropriate action be taken by the TIGER HOUND FAC located at the forward operating base for this eventuality. If this FAC was unavailable for any reason, the control center then requested alternate TIGER HOUND satellite sites to provide a FAC, and if necessary requested assistance from an appropriate Corps DASC. ^{67/}

The ABCCC insured that an emergency air support request from an infiltrated SHINING BRASS team was given the highest priority. If TIGER HOUND sorties were not available to provide CAS, the ABCCC or FAC obtained appropriate support through the RVN TACS. The TIGER HOUND Task Force provided fighter aircraft to cover infiltration and exfiltration as necessary. As strikes in this category were for the protection of US troops under fire, formal approval for an air strike was not required. ^{68/}

[REDACTED]

69/

A typical SHINING BRASS mission was reported as follows:

"Recon Team Kansas infiltrated target Number 3 on 19 August. Small arms tracer fire was directed at the helicopter in the vicinity of the landing zone. Suppressive fire was furnished by the accompanying two A-1E's and two UH-1B's. M-14 mines were emplaced in a cave entrance, and three trails were also mined. Seven armed VC were seen in the area."

AC-47 FAC/Strike Role

AC-47's performed day armed reconnaissance missions in central and southern Laos (STEEL TIGER) area in late December 1965. Four AC-47's were deployed to Udorn for that purpose. Their secondary mission was to assist in the interdiction of enemy traffic by controlling strikes of other aircraft and by attacking with their miniguns. 70/

These were unique roles for the crews and necessitated development of tactics and procedures. Apart from the heavier enemy antiaircraft fire the crews had to face in Laos, flying in that area was complicated by poor maps, hazardous terrain and marginal weather. 71/

Without question, the AC-47 became a prime target for the enemy and in the ensuing six months four aircraft, one-fourth of the AC-47 force, were lost over Laos. Also, AC-47's operating from Pleiku flew armed reconnaissance missions in support of TIGER HOUND. 72/

On 19 February CINCPAC directed that an acceptable number of AC-47's be deployed to Nakhon Phanom in the immediate future. These aircraft were to support Operation CRICKET. Four aircraft were deployed on 179 days TDY

[REDACTED]

to Udorn on 26 February. These aircraft averaged two sorties a night flying approximately six hours per sortie. 73/

In both the TIGER HOUND and CRICKET areas, VR and FAC duties were performed by O-1E's during daylight hours and AC-47's at night, thus providing a 24-hour road watch. The AC-47's shared airborne command and control center functions with C-130's. This provided an on-the-scene coordination, target validation by Laotian authority, either airborne or on the ground, and FAC and flare support. 74/

The AC-47 was a moderately well instrumented aircraft which could fly to the operating area through weather which would turn back the VFR-only O-1's, thus providing greater flexibility in FAC operations. 75/

In Laos, as in the RVN, the bulk of the AC-47 missions were routine in nature. Typically, on 28 January 1966, an AC-47 in the TIGER HOUND area spotted vehicular traffic. The crew fired on the vehicles and observed two secondary explosions. The aircraft remained in the area, acting as FAC for the follow-on fighter strikes. 76/

In July, the AC-47's were returned to the RVN from Thailand to use them on RVN night flare missions. Apart from the hostile environment, there were other important reasons. The night armed reconnaissance role was taken over by A-26A aircraft which had a built-in flare/strike capability. These arrived at Nakhon Phanom on 18 June. There was also an urgent requirement to relieve the C-123's in the RVN of their night flare duties and return them to the airlift role. 77/

[REDACTED]

With the arrival of eight A-26's at Nakhon Phanom, another twin-engine weapons system capable of extensive loiter time was introduced. After crew indoctrination and area familiarization, the A-26 began night surveillance and armed reconnaissance flights in late June. ^{78/}

Control of Night Strikes in Laos

The first night strike mission in Laos was flown on 22 January 1965, and was considered successful, but for the next year night operations out-of-country were not generally effective. In early December 1965, only 25 percent of the armed reconnaissance missions were flown at night, while ^{79/} a much higher percentage of the traffic moved at night.

It was realized that an almost exclusive daytime interdiction program could not succeed, since enemy movement was predominantly at night. The interdiction concept had to embrace a 24-hour-a-day framework in which motorable LOC's were cut, movement inhibited, targets acquired and destroyed. ^{80/}

In the TIGER HOUND area during the spring of 1966, usage, experience and sophistication of the concept began to reap results. After daytime bombing had interdicted roads at "choke points", night armed reconnaissance missions struck traffic backed up behind the road cuts. By the end of May 1966, some 1400 trucks had been destroyed or damaged and 1336 secondary explosions reported, with about 35 percent of this destruction being accomplished at night. ^{81/}

Before the night effort matched the day effort, no comparable

[REDACTED]

reduction was noted though the primary out-country effort was aimed at interdiction. Some night air operations were used for close and direct air support of FAR and Meo Tribesmen forces. An outstanding use of the AC-47 in such support occurred at Attopau, Laos, on 4 March 1966. One aircraft was credited with stopping an enemy takeover of the town by using a Starlight scope for target acquisition and 7.62 miniguns to stop the troop advance. 82/

Since 1 July 1966, A-26A aircraft were flying out of Nakhon Phanom on FAC/strike missions, mainly in the STEEL TIGER area. Also, C-47's 83/ were used since late spring of 1966 as an ABCCC aircraft in Northern Laos.

Minimum control procedures required that the FAC have continuous VHF contact with the flare aircraft and the flare aircraft have continuous UHF contact with the strike aircraft. All FAC's would assure that a target was approved prior to requesting and or directing strike aircraft to attack the target. 84/

Night armed reconnaissance missions employing "teams" of one flare ship plus two strike aircraft and one Marine EF-10B ECM aircraft were flown with considerable success in Southeast Asia. C-130's were used to provide precise navigation, visual reconnaissance and flare illumination for strike aircraft. If moonlight and terrain conditions permitted, 85/ strike aircraft often elected to attack without flare illumination.

A rendezvous point was selected to allow the strike aircraft to join with the flare and ECM aircraft and descend to prebriefed altitude,

[REDACTED]

normally 8000 feet or higher, prior to entering the target area. Strike aircraft entered the rendezvous area 2,000 feet above the flare aircraft. It was important to remain above because all illumination was below the C-130. ^{86/}

After join-up the flare aircraft descended to prebriefed altitude and accelerated to 250 knots with the strike aircraft remaining high and behind. The C-130 turned off the anti-collision light, if visibility permitted. The flare ship called all heading changes and advised the strike aircraft prior to entering the target area. ^{87/}

When the flare ship sighted a possible target, the strike leader would be warned of a possible flare drop. Prior to flare drop, the flare ship informed the strike aircraft of the target elevation on either side of the target and the highest terrain elevation and clock position within a five-mile radius of the target. Twelve flares were dropped at prebriefed altitude and would illuminate at 3000 AGL. ^{88/}

GATE GUARD Procedures

Based on a study of truck traffic in Route Package I in NVN, wherein 1000 trucks were spotted moving into Laos in April 1966, the decision was made to increase the weight of the interdiction there, day and night. ^{89/} A special program known as GATE GUARD was initiated for this purpose.

Initiated in early May, GATE GUARD concentrated first on the STEEL TIGER area of Laos, and then shifted across the mountains to Route Package I at the turn of the monsoon. ^{90/}

Like TIGER HOUND, it employed C-130's at night with flares and with diversion authority, a continuing input of strike aircraft, ECM by RB-66's and gun-laying radar suppression by IRON HAND F-100F's, IR/SLAR reconnaissance along the coast, and photo reconnaissance by RF-101's. A-1E FAC's

TOP SECRET

provided visual reconnaissance during the daylight hours. ^{91/}

Interdiction lines called "Gates" running basically east and west across the major LOC's, were established. The objective was to cut each gate, working progressively south to north. The concept called for interdiction by daylight and exploitation at night. ^{92/}

Photo reconnaissance was introduced into the program as a package -- six to eight sorties over a given choke point nightly. Immediate read-out was accomplished upon landing, and if traffic was found, word was passed through the CP to the flareships. The flareships illuminated the area and called in fighter strikes. ^{93/}

Flare/Command Post C-130's were not normally considered "high survivability" aircraft for this AAA environment. However, RB-66's as ECM pickets and strike-armed IRON HAND flights negated effectiveness of 37/57 AAA and restricted ground fire to optically sighted automatic weapons. ^{94/}

The C-130's flew blacked out at 6000 feet, above automatic weapons range. If the ECM aircraft were not on station, the C-130 retired to the south. Normally, two flare aircraft took position in Armed Reconnaissance Route Package I (ARRP I), one orbiting a primary choke point midway up the Package, and the other working random patterns over the LOC's. ^{95/}

TALLY HO Procedures

Operation TALLY HO was initiated on 17 July 1966, with first air strikes being flown on 20 July. Employing much the same principles as those followed in TIGER HOUND, the TALLY HO program was designed to

[REDACTED]

interdict enemy forces infiltrating through the demilitarized zone (DMZ) ^{96/}
into the RVN.

As TIGER HOUND operations were being thinned out concurrent with the inception of TALLY HO operations, it was decided that the TIGER HOUND joint staff would manage TALLY HO. The task force further consisted of a TIGER HOUND unit at Da Nang AB and four outlying FAC sites at Khe Sanh, Kontum, Dong Ha and Kham Duc in the RVN. As Dong Ha was the northernmost FAC site, TALLY HO FAC's operated from there. ^{97/}

The concept of operations for TALLY HO hinged on visual reconnaissance performed principally by airborne FAC's flying in pairs in O-1E's. The range of VR was extended with the use of USAF A1E's and US Army OV-1 ^{98/}
SLAR aircraft.

Hillsboro Control, the C-130 ABCCC operated with both TIGER HOUND and TALLY HO forces. Requests for air strikes were normally forwarded by the FAC to the ABCCC to accomplish necessary coordination, providing strike aircraft with all necessary information. ^{99/}

When the ABCCC was not airborne, strikes were made through any available CRP or the I Corps DASC. The agency receiving the request then requested approval from the TACC, who in turn, scrambled or diverted strike aircraft through normal procedures. ^{100/}

Since the TALLY HO area was a heavily defended one, O-1E's were required to work only in areas where they could survive. This permissive

[REDACTED]

area was established as being in the western mountainous area, with the O-1E's probing gently into the eastern sector. This limitation on the FAC's had its drawbacks, because the eastern portion of TALLY HO contained the principle motorable routes. In the western area, the mountainous terrain was heavily canopied by foliage. 101/

Where in the TIGER HOUND area, the FAC's flew just over the tree tops spotting trucks and storage areas, they were required to fly at an altitude of 1500 feet in the TALLY HO area, and this made it very difficult to spot lucrative targets. 102/

The A-1E aircraft which provided escort/fire suppression, were also used for visual reconnaissance. All FAC and VR aircraft were directed to avoid heavy defense areas and to maintain radio contact with the ABCCC. O-1E's were directed to fly in pairs and to maintain visual or radio contact with other aircraft when Hillsboro was not airborne. The ABCCC and FAC's were authorized to divert strikes to targets of opportunity within the existing rules of engagement. 103/

At night, a search element composed of Army Mohawk Side Looking Radar (SLAR) aircraft, call sign - Spud, and C-130 flare aircraft, call sign - Blind Bat, flew and provided target information to all night armed reconnaissance sorties directed down the LOC's. Additionally, strikes were directed against fixed targets at night by utilizing the MSQ Sky-Spot radar bombing technique. 104/

Proposed MSQ-77 Site in Laos

COMUSMACV proposed locating a MSQ-77 Sky Spot unit in North Laos. One

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consideration was Phu Pha Thi, a remote mountain top which was leveled for TACAN "Clara" by Meo labor using some ten tons of explosives. Security against ground attack was provided both by the precipitous terrain and Meo troops. 105/

Collocation of the MSQ-77 was desirable both for security and economical air resupply purposes; however, should crowding of facilities at this location present a frequency interference problem, the Lao military were prepared to clear another site. 106/

Tentative rules of engagement for Sky Spot use were expected to parallel those applicable to south Laos, i.e., frag orders were originated by 7th Air Force, and attacks were made only against validated RLAF targets. 107/

In anticipation of early approval to locate the MSQ in north Laos, targets selected by RLG forces were being nominated for validation in late 1966. These included interdiction, perimeter defense, and preplanned direct air support targets for use in future operations. On call and immediate requests could also be honored at a later date, with validation performed by an on-the-scene Lao FAC. 108/

Airborne Coordinator Procedures

The role of Airborne Coordinator was conceived in the out-of-country environment in 1965. Because missions over NVN were being fragged for 24 to 28 aircraft, the strikes were composed of flights from several

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[REDACTED]

different bases. A force of this size with individual flight TOT separations of as little as five minutes, low visibility, hard to acquire targets and the overriding requirement for positive target identification made some type of strike coordinator for all the aircraft on a given mission imperative. 109/

In his normal role, the Airborne Coordinator would lead the first flight into the target area. The alternate coordinator would fly as number two. Basic mil settings with pre-briefed offsets were used by the second element for ordnance releases. 110/

As the flights entered the target area, the Air Coordinator would clear the flights in, advising wind direction or velocity, where the previous flight's impacts had been, changes in the direction of pulling off the target, etc. In cases of inclement weather, as the incoming flight progressed into the immediate target vicinity, the mission leader often acted as a homing beacon for easier target acquisition. 111/

The altitudes at which the coordinator would fly, varied considerably. During those periods of time that he was simply monitoring the various strikes, he probably orbited between 10 and 16 thousand feet. During those periods of time that he was making target damage assessments, pinpointing the target for incoming flights, etc., his altitude was much lower. Target weather conditions such as ceilings and visibilities also played a part in determining orbit altitudes. 112/

In some instances, it was not advisable for the Air Coordinator to

[REDACTED]

carry ordnance. This was due to the requirement for the mission coordinator to stay in the target area for prolonged periods. In addition, it 113/ minimized the coordinator's exposure to ground fire.

On some of the larger strikes, due to the wide spread in TOT's, distance back to the recovery base, refueling, etc., it was often necessary for the original coordinator to pass control to one of the incoming flight 114/ leaders.

Out-of-Country Epilogue

United States military strategy for Vietnam basically involved three inter-dependent undertakings which together constituted an integrated concept for the conduct of military operations within the Southeast Asia theater. Tactical air was playing a vital role within the integrated 115/ concept.

As 1966 ended, the air war was being systematically pursued in the skies over the RVN, Laos and NVN. Although each of these campaigns had characteristics all its own, the trident air effort was progressively 116/ being developed and applied through one system of tactical air control.

Along with the major interdiction campaigns in Laos, USAF operations were also playing a progressively more important role in the effort to prevent a communist victory in that country. Flexibility of the TACS allowed air to be applied in practically any given situation in which its services were required. This was essential in view of the fact that the

[REDACTED]

total effort in Laos was intimately linked to the campaigns against NVN 117/
and in the RVN.

For instance, NVN forces in northern Laos in the fall of 1965 succeeded in taking a number of long existing sites from friendly forces. The enemy intention was apparently to establish a secure LOC along Route 6 to the Plaine des Jarres with the ultimate objective of being in position to resume a major offensive at the start of the next dry season. 118/

To help counter this enemy move, the USAF introduced an integrated CAS system in April 1966. Additional FAC's were stationed in the area. A-1E's were used as airborne forward control; approximately 32 jet sorties were scheduled daily; and close collaboration was established between the RLAF headquarters, 7AF at Udorn, and CAS intelligence teams to provide detailed and timely intelligence on enemy movements and on logistics on Routes 6 and 7. 119/

The marriage of excellent intelligence furnished by CAS teams and air support by 7th Air Force units enabled outnumbered friendly units not only to contain the enemy offensive but to mount a counter-offensive which regained 90 percent of the area lost between November 1965 and April 1966. 120/
RLAF T-28's also made a considerable contribution to this effort.

A message from the American Embassy, Vientiane on 13 August 1966 summed up the relation between this particular operation in Laos and the war in the RVN: 121/

"Apart from their in-country significance, operations

[REDACTED]

in Northern Laos have thus made an important contribution to allied military effort in Vietnam by engaging a substantial portion of DRV forces in costly operations outside main theatre of operation in South Vietnam. Single most important factor rendering these operations costly to enemy has been USAF tactical support."

[REDACTED]

Chapter IV

COMMAND AND CONTROL OF STRIKE RESOURCES

Escalation of the Vietnam conflict had been such that the large commitment of American military units, both air and ground, was permitting the friendly forces to take the initiative away from the enemy. Major ground operations were being conducted daily throughout the RVN in 1966, and the full spectrum of tactical airpower was being applied both in-country and over Laos and NVN. ^{1/}

Over 400 tactical combat sorties, many of which were in close support of major ground operations, were being flown daily in the RVN by USAF, VNAF and USMC aircraft. Additionally, over 400 combat sorties by USAF, USMC and USN aircraft were being flown daily against military targets in NVN and Laos. ^{2/}

While the complex nature of the early COIN effort had made airpower a subject of controversy in the RVN, escalation dictated that it become an essential element in the prosecution of the war. As the air posture was developed and made more responsive to military objectives within the theater, and effectiveness was gained in targeting, interdiction and close air support (CAS), the recognition and prestige of tactical airpower had steadily increased. ^{3/}

Management of air resources in SEA had been a subject of contention during the early years when the nature of the conflict precluded the effective application of airpower. ^{4/} In consonance with the refinement of the

[REDACTED]

air posture, however, more responsive command lines were necessitated and the need for directing all tactical air resources through one channel of control became more pronounced. ^{5/}

Considerable time and attention was directed toward establishing central control during 1965 and 1966. Some progress was being made in this area and airpower was being more fully and effectively utilized; however, several seemingly intransigent anomalies in the system still existed. ^{6/}

Command channels for the control of tactical airpower in SEA in 1966 were basically as follows: Seventh Air Force (7AF) was subordinate Command of the Military Assistance Command, Vietnam (MACV), with command assignment over all USAF units based in the RVN. Tactical units stationed in Thailand were assigned to 13th Air Force in the Philippines and were under the operational control of 7AF. ^{7/}

USMC air wings worked directly for Marine ground units and were not available for general use unless released by the Marines. Targets for SAC B-52 strikes were developed by MACV with no inputs or evaluations by 7AF. ^{8/}

The US Navy provided three carriers. One operated in the Dixie station area for strikes against in-country targets designated by 7AF until 4 August 1966. The other two operated from Yankee station against targets in NVN as directed by CINCPAC. On 4 August, the Navy moved the one carrier from Dixie station to Yankee station, and ceased providing in-country sorties. ^{9/}

[REDACTED]

These command anomalies meant that there was no single Air Commander in Vietnam and air resources were fragmented among various command agencies with no centralized control or direction. 10/

In effect, the existing composition of MACV Headquarters made it a Joint Headquarters in name only. The Air Force did not have proper representation on the staff commensurate with the contribution it was making in the war. 11/

On the other hand, contingency requirements beyond the scope of limited war precluded COMUSMACV from having all air resources under his command. These forces included the fighters operating from Thailand bases. 12/

It was COMUSMACV's position that the problem of imbalance in the joint structure could not be corrected until such time as he had under his command all air resources involved in the war. 13/

More was involved than just irreconcilable views among the various services. One possible avenue to a solution was the component air commander being assigned control of all Air Force assets as well as those of other air services. This would mean that COMUSMACV would have one Air Commander responsible to him for providing his total Air Force air support. Anything he needed which the Air Force had the capability of providing, would be channeled through this Commander. He, in turn, would place the requirement on the appropriate Air Force Command if unable to meet the request with his own assigned resources. 14/

[REDACTED]

There were two command and control variances which affected the application of the total air capability more than others. One of these was the control of SAC B-52 forces by MACV wherein that headquarters selected and designated targets and decided upon forces required, requesting these forces directly and without regard to air resources in the RVN. To insure that the most effective weapons system was applied against various targets, it was logical that target approval and recommendation (control) for the utilization of SAC strikes should be vested in the Commander 7AF as opposed to control by MACV. ^{15/}

The other major variance was the establishment of an organic Direct Air Support Center (DASC) for the III Marine Amphibious Force (MAF). From a purely doctrinal standpoint, the Marine squadrons after the amphibious phase should have become part of the forces available to COMUSMACV under direction of the 7AF Tactical Air Control Center. In early 1966, Air Force officials recommended such an arrangement including a single DASC for I Corps; however, the MACV staff, after studying the recommendation, ^{16/} concluded that a unilateral Marine DASC for I Corps should be retained.

Two other significant divergencies involved the TIGER HOUND concept of operations and the split assignment of geographic areas over NVN for strikes by USAF and USN aircraft. The TIGER HOUND program, which was initiated in December 1965, was begun to interdict enemy lines of communication (LOC's) leading through Laos into the RVN. Under the TIGER HOUND concept, a special task force was created ostensibly reporting directly to COMUSMACV. Later, during the last half of 1966, this same task force

[REDACTED]

was used to control the TALLY HO program of interdicting enemy LOC's leading through the southern half of NVN through the DMZ into South Vietnam. ^{17/}

There was no doctrinally sound reason for the establishment of this special category function, because both the TIGER HOUND and TALLY HO operations could have been successfully integrated within the in-country TACC. The CINCPAC assignment of geographic areas was likewise impractical from a doctrinal point of view, and ignored the assets which the Air Force had built up to accomplish the total air performance in NVN. ^{18/}

Summarily, two cardinal issues were involved in providing the most effective air support to COMUSMACV: (1) Control of air should be vested in a single air commander; and (2) Existing controls and procedures were adequate to apply the air forces available in accordance with the tactical and strategic considerations. ^{19/}

Command and Control of B-52 Operations

One of the most controversial aspects of air operations in Vietnam concerned the employment and effectiveness of B-52 operations. The difficulties involved with target acquisition and BDA assessments, coupled with a questionable system of command and control over B-52 strikes, made these SAC operations even more controversial. ^{20/}

Problems associated with target selection and BDA assessments were not easily resolved; however, it was logical that better employment of

[REDACTED]

this force in SEA could be realized by a closer integration into the
Tactical Air Control System. ^{21/}

As Air Component Commander, the Commander 7th Air Force was charged
by COMUSMACV with responsibility for all USAF operations in the MACV area.
The B-52 ARC LIGHT force was an Air Force operation but under arrangements
which existed, the Air Component Commander did not participate in plan-
ning for B-52 operations prior to the decision to make the strike. ^{22/}

Furthermore, the MACV level, Tactical Air Support Element (TASE),
which was charged with responsibility as COMUSMACV's representative for
coordinating ground and air operations and assigning priorities for tacti-
cal air support, was not informed of plans for B-52 strikes until a few
minutes before they were made. ^{23/}

Preplanned B-52 strike missions requested by the field force/corps
commander were channeled through the Air Ground Operations System MACV
TASE then to TACC for direction of the mission. Therefore, partial in-
tegration of the two air support resources was performed at the field
force/corps level. ^{24/}

There were strict limitations on how the B-52 could be used, and
for this reason final authority for its employment rested with CINCPAC
or higher authority. Because of this, and in order to insure that the
ARC LIGHT program continued to support COMUSMACV's strategy, the basic
targeting program and target approval were appropriately a MACV level
function. However, there were distinct advantages and no significant

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disadvantages to obtaining 7th Air Force coordination in the planning stages and to utilizing more fully its facilities, expertise and staff in the mounting and control of B-52 missions. ^{25/}

^{26/}
Advantages were as follows:

- (1) It would bring the total USAF strike capability under the cognizance of the Air Component Commander, thereby taking advantage of his expertise, control facilities and full knowledge of the total air situation.
- (2) It would permit fully integrated planning and employment of tactical air with B-52 operations.
- (3) It would relieve the MACV staff of detailed air operational functions more properly performed by the air component, while retaining control of basic targeting, policy and priorities at MACV.
- (4) It would take full advantage of the established JAGOS to coordinate, control and monitor Arc Light missions.

Developments beginning in mid-1966 made wider participation in B-52 operations by 7th Air Force even more advisable. These were the planned expansion of the program, the institution of a diversion capability, and the probable increase in immediate missions. ^{27/}

Although there was some question as to the justification for increased B-52 operations in SEA, ^{28/} COMUSMACV considered it mandatory that additional B-52 spoiling raids be employed on a timely basis in the RVN. He related this concept to the fact that the 7th Air Force had increased appreciably its all-weather air support and bombing capabilities with the deployment of the MSQ-77 radar units, operation of ground long

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range weather detection radar, B-66B Pathfinder Buddy Bombing System,
the F-4C UHF/DF Homing Capability, and X-Band Radar beacons. ^{29/}

He considered that maximum effectiveness from Guam-based B-52 raids could be realized only when there was a minimum time between detection of the threat and time on target (TOT). In this respect, the minimum requirement was for six B-52's to be over any target in SEA in 7½ hours from the initiation of MACV's strike request. ^{30/}

One obvious answer to the B-52 timing requirements expressed by COMUSMACV was to have Arc Light strikes conducted using the MSQ-77. By using this system, B-52 aircraft could be diverted in flight to targets developed by the latest intelligence. Another consideration was to stage B-52 aircraft at bases closer to the RVN. ^{31/}

As an immediate step, COMUSMACV recommended to CINCPAC that an intermediate solution be adopted which would provide a reaction time of approximately ten hours. This concept visualized six Guam-based B-52 aircraft being placed on continuous alert ready to react immediately with a minimum of briefing and target study time requirements. ^{32/}

CINCPAC replied on 15 May 1966, concurring with COMUSMACV that placing a portion of the Guam B-52 force on alert, and diversion of enroute Arc Light missions to MSQ-77 directed strikes were possible means of increasing reaction capability. There was no objection by CINCPAC to the establishment of contingency zones, which would be submitted in advance for CINCPAC approval, to which in-flight missions could be diverted for MSQ

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directed strikes; however, he did not concur with blanket approval for strike diversions. He advised that improved reaction by more forward deployment of Arc Light forces had been under study and was determined to be unacceptable from a political viewpoint at that time. ^{33/}

A few months later, however, COMUSMACV's recommendations relating to B-52 timing requirements were being realized. Preparations were being made for more forward deployment of ARC LIGHT forces and a diversion capability was established. ^{34/}

This increased employment of the B-52's as a tactical bomber force reemphasized the need for the Air Component Commander to have more control over their operations. Doctrinally, a tactical bomber force was a component of the Tactical Air Force command structure; thus, it followed that the B-52's in SEA should be controlled and directed in the same manner as all other elements of the Tactical Air Force. ^{35/}

Since MACV did not directly control all the other elements of the Tactical Air Force, there was no logical reason for him to control the B-52 tactical operations. The same confidence he had in the Air Component Commander for all other tactical air operations should be manifest in the planning and employment of B-52's. ^{36/}

Lt Gen Momyer pointed out in a message to Headquarters USAF on 23 September 1966 that "...the B-52 operation in SEA has now expanded to the point where the original ARC LIGHT System is no longer applicable." He recommended that target selection by MACV be continued, and that 7th

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Air Force exercise operational control of B-52 forces during the execution phase. He explained that this would allow for a smooth integration into daily air operations and would provide for better coordination in follow-on visual BDA and fighter strikes as necessary. 37/

On 30 October 1966, following a session on another matter, COMUSMACV asked General Momyer to discuss the handling of B-52 operations particularly in view of their expanding scope. He stated that there had been considerable relaxation on the level of control of these strikes and perhaps the time was at hand for him to examine the feasibility of delegating control to the Air Component Commander or reinforcing his staff to handle the increased scope of operations. 38/

General Momyer pointed out that an immediate need existed to "concentrate all air activities under the Air Component Commander." He explained that the Air Commander had more expertise for managing B-52 strikes than could be accumulated on the MACV staff. Furthermore, the Air Commander had to provide reconnaissance, escort, follow-on strikes, suppression of enemy fire if it should develop and warning through the TACS. All of these functions were inseparably related to B-52 operations. Hence, B-52's were essentially an extension of current tactical operations and needed to be more precisely managed to minimize mutual interference while getting the most security and effectiveness for the strike force. 39/

COMUSMACV was particularly interested in the concept for controlling a diversion from primary target. The 7th Air Force Commander explained

TOP SECRET REPORT

that "it would be handled like any other immediate air request which we process as almost a routine action." Essentially, diversion would be accomplished in the following manner. The Division Commander would make the target known to the ALO. The ALO would go to the DASC, and the DASC would contact the TACC. If it represented a new target completely, 7th Air Force would double check with the COC. If it was a diversion of only a few miles, the 7th Air Force Commander would authorize and the strike would be handled by the MSQ and the TACS. All of these actions followed procedures that were exercised daily in employing the tactical air effort. ^{40/}

The Director of the MACV Combat Operations Center, responsible for B-52 strikes, indicated his concern over the magnitude of the program, and the ability of MACV to handle it without undue expansion of facilities and personnel. He was of the opinion that responsibility should be passed to the Air Force Component Commander. ^{41/}

Headquarters, USAF advised that should control of B-52 operations be passed to the Air Component Commander, a SAC ADVON would be provided to do the operational planning. This would satisfy the requirement to streamline and improve the targeting, tasking, approval and coordination procedures as they pertained to B-52 operations through use of the Air Deputy. At the same time, this arrangement would provide better integration of ARC LIGHT into the overall SEA air operations and insure that qualified personnel made the force allocation, i.e., the determination of whether strategic or tactical forces attacked a specified target. ^{42/}

The 7th Air Force position was that the Air Component Commander

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should have complete control of the whole ARC LIGHT operation except ^{43/} for targeting. General Momyer explained this position:

"This /targeting/ is a policy determination and MACV should make selection of targets with 7th AF giving the reaction and nominations. Do not think we should split control as suggested alternative by MACV. This would make it very difficult to determine who was carrying responsibility. Furthermore, it is unnecessary as long as MACV determines the strategy and policy for overall employment. There is no question of his having and exercising this authority."

Employment of USMC Air Resources

Marine Corps employment in the RVN departed from the traditional concept of landing, securing and stabilizing an area for follow-up Army occupation and reinforcements. The Marines in the RVN were more or less considered "land owners" by virtue of territorial responsibilities assigned in the same sense as the Army, and as such they had departed from their traditional mobile posture. ^{44/}

This presented a problem as far as the centralized control of air was concerned. Marine Corps aviation resources were considered to be organic to III MAF and were commanded and directed in support of tactical operations as designated by Commanding General, III MAF. The Marine Corps TACS, a component of Marine aviation, exercised positive control over all USMC aircraft in support of Marine Corps operations and over ^{45/} other aircraft assigned in support of such operations.

The Marine Corps TACS included a Tactical Air Direction Center

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(TADC), Direct Air Support Centers (DASC's), radar surveillance capability, and terminal guidance facilities. By MACV directive, this system was responsible for coordinating with the USAF TACS and being prepared to supplement and integrate with the existing Air Defense Control System. ^{46/}

Pre-planned strikes for all USAF, USN, VNAF and some USMC aircraft were fraggd based on target priority and controlled operationally by the TACC in-country. Sorties for these targets were diverted as necessary for immediate strikes on higher priority targets generated after the launching of the pre-planned strike. In this way the most efficient use of airpower was realized. However, Marine Corps operations generated targets that were fraggd and controlled by the Marine TADC with Marine requirements taking precedence for their assets. Sorties available over and above the Marine requirement were then made available to the TACC for other in-country targets as needed. ^{47/}

The above procedure essentially elevated even the lowest priority Marine target to a level equal to the highest priority in-country target. This practice obviously did not contribute to the most efficient employment of overall air resources. ^{48/}

The Marine requirement for organic TADC and DASC's for mobility and flexibility were quite valid when deployed traditionally; however, stabilized deployment as in the RVN obviated the need for a duplicative control system. Elimination of the Marine TADC or integration into the TACC would improve coordination of air strikes and increase airpower efficiency

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through a central agency for target selection and operational control. ^{49/}

What appeared to be lacking was an exercise of authority to balance air support for the number and scope of III MAF - directed ground operations in progress at any one time with the air support requirements of all other ground operations. A disparity in air assets available to various ground operations therefore existed. ^{50/}

This disparity was graphically demonstrated in a study prepared by Col Arthur W. Owen, Jr., Chief, Current Plans Division, TACC on 10 November 1966. The study pointed out that as of 1 November, there were three Marine and three ARVN operations of battalion size or larger underway in I Corps. At the same time there were six US/FWMAF and five ARVN major operations in progress in II Corps; seven US/FWMAF and seven ARVN in III Corps and five major operations in IV Corps. The disparity between air assets dedicated to USMC/ROK Marine major operations, USMC TAOR's, OA's and ROAR's (Reconnaissance Operational Areas of Responsibility) located outside the TAOR's and that available to the forces operating in the remainder of I Corps and all of II, III, and IV Corps was made evident by the study. Out of the total in-country pre-planned capability of 465 sorties, the USMC possessed a capability of 135 pre-planned sorties in support of US/ROK Marine ground forces only. ^{51/}

This problem became even more acute when the factor of additional ground forces deploying to the RVN was considered. Air elements in the RVN were responsible for providing COMUSMACV with the most effective air

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support for all of his ground forces within the overall scheme of maneuver. This could best be assured if central direction of the total air effort was vested in the Air Component Commander. ^{52/}

Geographic Assignment of Areas in NVN

A significant development during 1965 was the establishment of a joint committee to coordinate Air Force and Navy activities in support of the ROLLING THUNDER armed reconnaissance program. The responsibility and authority for this coordination was delegated to the 2d Air Division Commander by CINCPACAF. ^{53/}

This committee, consisting of representatives of the 2d Air Division and Task Force 77, was charged with insuring that the ROLLING THUNDER Armed Reconnaissance program objectives were achieved within USAF and Navy resources. Under the chairmanship of the Director of Combat Operations, 2d Air Division, the committee was responsible for the coordination of armed reconnaissance against NVN and Laos to prevent overlap and duplication of effort between the 2d Air Division and TF-77 and to insure maximum program effectiveness. ^{54/}

Working through an Armed Reconnaissance Target Panel and a Photo Elint Reconnaissance Panel, the committee determined the NVN LOC's along which armed reconnaissance could be most effectively conducted. Targets selected by the Panel were evaluated and joint target lists agreed on by the committee. ^{55/}

It was proposed by the Navy that routes be divided into "packages"

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encompassing principal LOC's. Such "packages" including LOC's and adjacent reconnaissance targets would then be assigned to either the Air Force or Navy for an agreed period of time. Initially, it was recommended that this period be for two weeks to coincide with the ROLLING THUNDER period beginning 24 October 1965. 56/

This proposal was made with the understanding that strike operations by either service against JCS targets would take precedence over armed reconnaissance operations within any designated route package. 57/

The initial proposals made by the committee were concurred in by CINCPACAF and CINCPACFLT and approved by CINCPAC on 2 December 1965 for implementation. Committee proposals for route package assignments were to be circulated at least three days prior to the beginning of each ROLLING THUNDER period. Concurrence by higher echelons would be indicated by absence of comment. 58/

At the 6 December 1965 meeting, the committee agreed to assign Armed Reconnaissance Route Packages I and III to TF-77 and ARRP's II, IV, and V to the 2d Air Division, beginning 10 December 1965. The TF-77 representative further recommended that the assignment period for ARRP's be for four weeks instead of two to achieve a more effective armed reconnaissance program. 59/ This system was later modified in accordance with a CINCPAC decision to assign geographic areas on a permanent basis. 60/

Subsequently, 2d Air Division officials went on record with MACV that the function of this committee "should be expanded into a SEA Air

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Board responsible for all SEA air plans" (CINCPAC and MACV), and that the SEAB be chaired by the 2d Air Division Commander. It was also pointed out that the adoption of additional controls or special groups to handle the application of airpower in Route Packages 1 and 2 was unnecessary. ^{61/}

The 7th Air Force Deputy for Operations at that time, Brig Gen G. B. Simler felt that the assignment of geographic areas was impractical. He said, "It ignores the assets which the Air Force has built up to do the total air job in NVN." Further, it did not treat the vital subject of targeting as related to a carefully integrated air plan. It was felt that the Navy could not provide the same kind of reconnaissance coverage either in quality or quantity that it was possible for the USAF to provide, resulting in an obvious degradation of intelligence information in Route Packages 2, 3, 4, and 6 in NVN. ^{62/}

In a related move which more or less moved USN aircraft from under the centralized control apparatus, TF-77 moved its carrier from Dixie station to Yankee station, and ceased providing in-country sorties. ^{63/}

A development which showed the need for close coordination and control of air resources over NVN occurred in September 1966. At the 26 August meeting of the ROLLING THUNDER coordination committee, the Air Force was allocated secondary targets in the Navy's area. Subsequently, CINCPAC readjusted both the attack sorties and areas of operations, since adverse weather and resultant reschedules from Route Packages V and VI-A were causing an excessive number of Air Force sorties in Route Package I. ^{64/}

At the 26 August meeting, the Western sector of Route Packages II,

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III and IV was designated as an Air Force operational strike area. At the same time, TF-77 identified special armed reconnaissance routes and targets in Packages II, III and IV as well as in ARRP VI-B, to be struck by the Air Force in the event a strike force was unable to attack primary targets. 65/

In other words, the Navy relinquished 54% of the land mass of Packages II, III and IV for operational activity by the Air Force. The Air Force was authorized 1500 sorties in the area which generally would have been utilized as a secondary target area for flights weathered out of Packages V and VI-A. Additionally, the agreement relieved the overkill potential that was building up in Route Package I due to weather re-schedules. 66/

Command and Control Epilogue

Commentary by Seventh Air Force Commander, Lt Gen William W Momyer best sums up the command and control requirements for tactical airpower in the RVN: 67/

"...The most inherent weakness in the air command structure today is the absence of an air component command having authority and control over all air matters in his assigned area of responsibility...."

"...A single spokesman on all air matters is elementary. A major problem that now exists is the fact that there is no single spokesman for air. The air component commander can only speak for portions of the job...."

"...The air component should be the single point of authority for MACV on all air matters. We

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should, therefore, not further compound the fragmentation of the air component command....

"...This is the only logical means of assuring unity of purpose and the proper application of the total air capability."

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